# Chapter 3 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION &/OR MITIGATION MEASURES

## 3.1 LAND USE

### 3.1.1 Regulatory Setting

#### Yolo County General Plan

The current Yolo County General Plan was adopted in 1983. The Plan outlines a number of goals for the County, including protecting prime and other agricultural land from urban development and maintaining good road conditions.

#### Capay Valley Area General Plan

Yolo County prepared a planning document specific to the Capay Valley in May 1982. The Capay Valley Area Plan is an amendment to the Yolo County General Plan. Like the County General Plan, the Capay Valley Area Plan emphasizes measures to preserve agricultural land and limit growth. Specifically, the intent of the plan is to "concentrate new development in the communities of Capay and Guinda and protect and preserve those areas outside these recognized areas."

#### Town of Esparto General Plan

At the time of the Esparto General Plan, about half of the 65 ha (160 ac) in Esparto were designated for residential use. Less than 20 percent of the land in this community is designated for commercial or industrial purposes, and about 17 percent is designated for public uses such as parks and schools. The remainder of land is vacant or unclassified.

#### Madison General Plan

Madison has a year-round population of approximately 850. Development is concentrated on the south side of SR16, west of CR 89. The Madison Migrant Labor Camp is located east of CR 89. This complex includes 88 multifamily housing units and is sponsored by Yolo County Housing Services.

#### Planned Development

Esperanza Estates is a planned residential development of 95 single-family homes on sites ranging from 557 to 1022 $m^2$ (6,000 to 11,000 $ft^2$). Esperanza Estates is currently under construction and located in Esparto on CR 20A, east of CR 85B.

Country West and Parker Place are two other subdivisions recently constructed on Esparto's west side. Country West is adjacent to the site of Esperanza Estates and is comprised of 59 single-family homes. Parker Place is on Esparto's northwest side, adjacent to SR16. It is made up of 72 single-family homes.

### 3.1.2 Affected Environment

SR16 runs through the Capay Valley along Cache Creek in western Yolo County. The Capay Valley is known for its agricultural production, primarily walnuts, almonds and orchard fruits. The Capay Valley is approximately 32 km (20 mi) long and runs northwest to southeast, from the Yolo County / Lake County border into the Central Valley.

Land use in the project area is divided between urbanized and agricultural areas. Within the developed areas of Esparto, Capay, and Madison there are areas set aside for residential, commercial, industrial, and public uses. Outside of these communities, along the SR 16 corridor, there are only two zoning classifications: Agricultural (A-1) and Agricultural Preserve (AP).

The Capay Valley is home to approximately 4,500 residents, or about three percent of Yolo County's population. Nearly 90% of Yolo County's residents live in the four incorporated cities: Woodland, Davis, West Sacramento, and Winters, all of which are situated along major interstate freeways east and south of the project area. The communities of the Capay Valley are Rumsey, Guinda, Brooks, Capay, Esparto, and Madison which are not incorporated cities.

### 3.1.3 Impacts

#### Consistency with Local Plans and Policies

The proposed project is consistent with the circulation policies enumerated in the Yolo County General Plan, the Town of Esparto General Plan, and the Capay Valley Area General Plan. These policies emphasize safety, including that of bicycles and farm equipment operators. The proposed project is designed to improve safety for all roadway users.

All of the planning documents applicable to this area emphasize the importance of farmland. Additionally, the County's Zoning Code requires private interests to offset the conversion of agricultural land by providing for conservation easements at a 1:1 ratio. As a State agency, Caltrans is not subject to this requirement. Nevertheless, Caltrans is bound by State environmental law to ensure to the greatest extent possible that its activities do not result in significant impacts to the environment. This obligates Caltrans to ensure that its activities do not undermine the intention of local plans and zoning. The predominant zoning in the project area is

for agricultural uses. Since the project would not prevent the continued use of land adjacent to SR16 as farmland, the project is consistent with local zoning and with the plan for this area.

Other than the use of land in front of Cache Creek Casino (where between 10.5 ha (26ac) to 15.6 ha (38 ac) of land would be required) the acquisitions required from individual parcels would range from 0.09 ha to 4 ha (2.22 ac to 10 ac), with the average acquisition on the order of 1 ha (2.5 ac). The use of slivers of large parcels of farmland for highway right-of-way is not anticipated to have a significant adverse impact on farming in this area.

With the exception of Segment 1, which would require between 10.5 ha (26ac) to 15.6 ha (38 ac) the acquisitions required from individual parcels would range from 0.09 ha (0.22 ac) to 4.0 ha (10 ac), with the average acquisition on the order of 0.8 ha (2 ac). The use of slivers of large parcels of farmland in order to create a safer highway would not be likely to have a severe adverse impact on farming in this area.

### 3.1.4 Avoidance, Minimization and/or Mitigation Measures

No mitigation is required or proposed.

## 3.2 FARMLAND

### 3.2.1 Regulatory Setting

The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA) require federal agencies, such as FHWA, to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of Statewide or local importance. The land does not currently have to be used for cropland. It can be forestland, pastureland, cropland, or other land, but not water or urban developed land.

The California Environmental Quality Act (CEQA) requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to deter the early conversion of agricultural and open space lands to other uses.

The County's Zoning Code requires private interests to offset the conversion of agricultural land by providing for conservation easements at a 1:1 ratio. As a State agency, Caltrans is not subject

to this requirement. Nevertheless, Caltrans is bound by State environmental law to ensure to the greatest extent possible that its activities do not result in significant impacts to the environment. This obliges Caltrans to ensure that its activities do not undermine the intention of local plans and zoning. The predominant zoning in the project area is for agricultural uses. Since the project would not prevent the continued use of land adjacent to SR16 as farmland, the project is consistent with local zoning and with the plan for this area

### 3.2.2 Affected Environment

In the year 2000, Yolo County's agricultural production was worth approximately $300 million. Yolo County ranked 23rd in the state for agricultural production, with one percent of total statewide agricultural output. Top agricultural commodities include tomatoes, wine grapes, rice, and alfalfa hay.

Much of the land adjacent to SR16 in the Capay Valley is either Prime Farmland or Farmland of Local Importance. In addition to farmland provided by the County via zoning, much of the farmland on both sides of SR16 in the area is under Williamson Act contracts.

### 3.2.3 Impacts

#### Farmland Conversion

Depending on the design options selected, the proposed project would require the conversion of between approximately 59 ha (146 ac) and 68 ha (169 acres) of farmland. The combination of design options that would require the least amount of farmland is: Option 3 in Segment 1; Option 2 in Segment 3; and Option 2 in Segment 6. This combination of design options would require approximately 49 ha (120 ac) of Prime Farmland.

Farmland impacts were evaluated using the Natural Resource Conservation Service (NRCS) farmland conversion scoring system. When a project scores 160 points or more in this system, the FHWA must consider alternatives that would serve the proposed project's purpose but convert either fewer acres of farmland or farmland with a lower value. The farmland conversion impact rating is based on responses to the questions on a standard form, Form AD-1006, which was submitted to NRCS Yolo County Field Office and the California Department of Conservation.

In this case, the proposed project's worst-case scenario (the use of 68.4 ha (169 ac) of farmland) has a score of 157 points on the farmland conversion impact scale. Thus, no further alternative analysis need be evaluated for farmland issues.

Additionally, farmland conversion impacts would be offset by the purchase of conservation easements on approximately 16.2 ha (40 ac) in this area for the purpose of mitigating for the loss of Swainson's hawk habitat. Because Swainson's hawk habitat can include cultivated agricultural land, the project will seek to apply these conservation easements to Prime farmland in this area.

Also, because the project would change the roadway's alignment in some areas, portions of the existing roadway no longer in use would become available as excess lands and would be offered to adjacent property owners. Depending on these individuals' wishes, this may result in the removal of roadway in some areas.

With the exception of Segment 1, which would require between 10.5 ha (26ac) to 15.6 ha (38 ac) the acquisitions required from individual parcels would range from 0.09 ha (0.22 ac) to 4.0 ha (10 ac), with the average acquisition on the order of 0.8 ha (2 ac). The use of slivers of large parcels of farmland in order to create a safer highway would not likely have a severe adverse impact on farming in this area.

Within the context of the ample farmland supply in Yolo County, and considering the minimizing factors mentioned above, the proposed project would not pose a serious threat to this resource.

### Williamson Act Lands

The design options that have the least impact on Williamson Act land is: Option 2 in Segment 1; either Option 1 or 2 in Segment 3; and Option 1 in Segment 6. This combination would use approximately 90 acres of farmland currently under Williamson Act contracts.
The worst-case scenario would be the combination of Option 2 in Segment 1; Option 3 in Segment 3; and Option 2 in Segment 6. This combination would use approximately 112 acres of Williamson Act land. The proposed project is not expected to result in the cancellation of any contract totaling more than 40 ha (100 ac).

Many of the agricultural parcels adjacent to SR16 are currently under Williamson Act contracts. Throughout the corridor, there are areas in which no roadway widening could occur without some impact to Williamson Act lands. The need for safety improvements in this area means that some of this land must be acquired for the purpose of bringing the roadway up to highway standards.

### Farm Equipment

The proposed project would accommodate farm equipment by providing 2.4m (8 ft) shoulders and an additional 2.6m (12 ft) of cleared area that will be sloped at a 1 to 4 ratio wherever possible. This would represent an improvement over the existing narrow shoulder. Conversations with representatives of the local farming industry indicate that some equipment may be as wide as 6 m (20 ft) and that most equipment averages about 4.6 m (15 ft). Currently, equipment of this width must utilize the oncoming traffic lane in order to stay on the road. Added shoulders would provide this equipment with enough room to avoid the oncoming lane of traffic.

## 3.3 COMMUNITY IMPACTS (ECONOMIC AND SOCIAL), PEDESTRIAN & BICYCLE FACILITIES, ENVIRONMENTAL JUSTICE, RELOCATIONS

### 3.3.1 Regulatory Setting

NEPA established that the federal government uses all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings. The Federal Highway Administration in its implementation of NEPA directs that final decisions regarding projects be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic changes may be considered in determining whether the physical change is significant. Because this project could result in a physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects

### Environmental Justice

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty

guidelines. In 2005, a family of four was considered below the poverty level if it's annual income was under $19,350.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix F of this document.

### Relocations

Caltrans Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations. The purpose of RAP is to ensure that persons displaced because of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries because of projects designed for the benefit of the public as a whole. Please see Appendix E for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act. Please see Appendix F for a copy of Caltrans Title VI Policy Statement.

## 3.3.2 Affected Environment

Residents associate the Capay Valley with its agrarian history and the relatively slow pace of life. There are no incorporated cities in the Valley and the communities in the area have, in the past, remained insulated from the rapid urbanization such as nearby Napa County and, more recently, in the cities of Woodland, Davis, and Winters.
The Capay Valley is home to an annual Almond Festival, held in late February.

### Population

The Capay Valley and surrounding area are located in Census Tract 115. This tract is made up of five Block Groups. At the time of the 2000 Census, there were 4,500 people residing in the area, 70 percent of which lived in the three block groups containing Esparto and Madison.

The Capay Valley is primarily Caucasian. Sixty-four percent of the residents of this area identified themselves as white. The proportion of Hispanics in the project area is high relative to both Yolo County and California as a whole. At the time of the 2000 Census, just over 40 percent of the residents of the project area identified themselves as Hispanic or Latino, compared to 26 percent in Yolo County, and 32 percent in California as a whole.

| TABLE 3 RACIAL COMPOSITION | | | | | | | |
|---|---|---|---|---|---|---|---|
| (Census Categories) | Project Area | | Esparto | | Yolo County | | CA |
| | *Number* | *Percent* | *Number* | *Percent* | *Number* | *Percent* | *Percent* |
| Caucasian | 2,907 | 63.9% | 1,202 | 65% | 113,812 | 67% | 59% |
| Black or African American | 41 | 0.9% | 23 | 1% | 3,262 | 2% | 7% |
| American Indian and Alaska Native | 56 | 1.2% | 8 | 0% | 1,714 | 1% | 1% |
| Asian | 101 | 2.2% | 21 | 1% | 15,792 | 9% | 11% |
| Native Hawaiian and Other Pacific Islander | 9 | 0.2% | 9 | 0% | 715 | 0% | 0% |
| Some other race | 1,227 | 27.0% | 517 | 28% | 23,859 | 14% | 17% |
| Two or more races | 211 | 4.6% | 62 | 3% | 9,506 | 6% | 5% |
| Hispanic or Latino | 1,848 | 41% | 794 | 43% | 43747 | 26% | 32% |
| Source : 2000 US Census (Census Tract 115) | | | | | | | |

## Title VI and Public Participation

The project area includes a resource for low-income migrant workers in the form of the Madison Migrant Labor Camp. The project would not impact this property or otherwise disproportionately impact low-income or minority households. Residential displacements would be distributed throughout the project area and would not disproportionately impact low-income or minority residents. Please see the appendices for a copy of the Caltrans Title VI Po9licy Statement.

Caltrans staff has made informational presentations about the Safety Improvement Project to residents at the Madison Migrant Labor Camp in 2001, 2002, and 2003. The majority of the attendees at the meetings were migrant laborers, who live and work in the Capay Valley. Caltrans District 3 provided a Spanish translator to translate the meeting for the attendees. A Highway 16 project brochure in Spanish was also handed out to the meeting participants. This brochure is also available in English.

Caltrans conducted an extensive public outreach program in order to obtain feedback from local residents and business owners prior to circulation of the draft environmental document. Please refer to Chapter 7 for a discussion of public outreach activities conducted for this project. Document circulation will provide an additional opportunity for members of the public to provide input.

### Community Cohesion

The Capay Valley is highly cohesive. People in the project area generally identify themselves as residents of their community (e.g., Brooks, Capay, Esparto, Madison) and as residents of the Capay Valley. Residents of this area are likely to see each other frequently at the grocery store, the post office, bars and restaurants, as well as at school and church. Other factors contributing to the community's cohesiveness are the number of active civic organizations and the stability of the neighborhoods.

### Community Facilities

North of SR16, just east of Esparto, the improved highway would pave over monitoring wells that are part of the Esparto Community Services District's (ECSD) Wastewater Treatment Plant. Relocating these wells will require that ECSD consult with the Central Valley Regional Water Quality Control Board (CVRWQCB) and would require the ECSD to complete further environmental studies to determine where replacement wells should be placed. This may require more time than is normally allocated to utility relocation.

The proposed project would require approx. 0.12 ha (0.33 ac) from a vacant parcel owned by the Esparto Unified School District. The district has no plans to utilize this parcel as part of future facilities.

The proposed project would add paved 2.4 m (8 ft) wide shoulders to SR16, allowing pedestrian and bicycle use with ample space away from the flow of traffic.

## 3.3.3 Impacts

### Relocations

The proposed project would require the full and partial acquisition of several parcels, some of which contain residences within or in close proximity to the new proposed right of way. The state will acquire right of way from approximately 75 different parcels. The majority of these acquisitions, approximately 60, would be partial acquisitions. Approximately 15 parcels will be fully acquired. Of these, approximately 10 homes will be acquired and the residents will be required to relocate.

The exact number and size of full and partial acquisitions is not known at this time and will depend on the final design of the project.

### Property Tax

The proposed project would require permanently acquiring approximately 70 ha (173 ac) of privately owned land. This would result in a loss of approximately $8,500 in property taxes annually to Yolo County.

### Property Values

Property values in the project area have been increasing rapidly, and the proposed project is not expected to affect this trend. The project would not alter the fundamental character of the highway or propose a dramatic realignment.

### 3.3.4 Avoidance, Minimization and/or Mitigation Measures

### Property Acquisitions and Relocations

To compensate owners and ensure adequate resources for the relocation of displaced people and businesses, the Federal Relocation Assistance and Real Properties Acquisition Act requires relocation assistance payments and counseling to eligible residents and businesses. Please see the appendices for a summary of the RAP.

## 3.4 GROWTH

### 3.4.1 Regulatory Setting

The President's Council on Environmental Quality (CEQ) regulations, which implement NEPA, requires evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality and population density, which are all elements of growth.

CEQA also requires the analysis of a project's potential to induce growth. CEQA guidelines require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

### 3.4.2 Impacts

The proposed project would neither place nor remove real obstacles to growth in the project area or in the region. The greatest obstacle to growth in this part of Yolo County is the predominance of farmland and the proliferation of policies that encourage and preserve farmland. The proposed project would not affect these policies.

In Segment 1, Option 1 would alleviate some flooding in and near Madison. The town of Madison is, and would remain, within the 100-year floodplain no matter which project alternatives are implemented. Any realized reduction in flooding in and near Madison is not expected to induce growth for several reasons. There are obstacles to growth in Madison that the proposed project would not affect. The majority of the surrounding land is zoned for agricultural uses and many of the parcels are under Williamson Act contracts. The town's water and sewer system would need to be upgraded to support additional development. A new school and parks would also be necessary to accommodate development.

## 3.5 UTILITIES / EMERGENCY SERVICES

### 3.5.1 Affected Environment

Telephone, fiber optic, and electrical lines parallel SR 16 throughout the project area. Two natural gas lines cross SR 16 at one location. The Esparto wastewater treatment plant is located east of Esparto and north of SR 16. The Madison Wastewater Treatment Plant is located east of Madison and adjacent to SR 16 to the south. There are also several private wells within the project area. The California Department of Fire (CDF), The Rumsey Rancheria Fire Department, and the U.S. Post Office all have offices located on SR16 at the western edge of the project area near the Cache Creek Casino.

#### Esparto Wastewater Treatment

The Esparto Community Services District (ECSD) operates the Esparto Wastewater Treatment Plant (WWTP) and its citywide collection system. This facility is located north of SR16 adjacent to the highway and east of the community. Approximately half of the treatment ponds have been constructed and the other half are planned facilities. This plan is based on the ultimate build-out in Esparto and has been agreed upon by the County and the Regional Water Quality Control Board.

Recently the Esparto Community Services District (ECSD) added several new monitoring wells to monitor groundwater in the vicinity of the treatment plant.

### 3.5.2 Impacts

#### Utilities

All utilities that conflict with the final design will be relocated prior to road construction. None of the existing treatment ponds at the Esparto WWTP would be affected by the proposed project. However, the project would encroach on land that is currently planned for future

treatment ponds. In order to alter this plan, the ECSD would be required to complete an environmental study for a new plan based on placing future treatment ponds elsewhere in the area.

The proposed project would require expanding the existing right of way to include two of the monitoring wells recently installed by the ECSD. In order to replace these wells, the ECSD would be required by the Regional Water Quality Control Board to conduct thorough environmental studies of replacement sites for wells. This process would need to be complete prior to the start of construction of the proposed project in this area. The ECSD has been informed of the projects impacts to their current and planned facilities.

### United States Post Office

Design Options 1 and 2 for Segment 1 would provide access to the improved SR16 by utilizing a portion of the existing SR16 that would be abandoned by the project. This new driveway would connect to SR16 at its intersection with Co Rd 78. Option 3 would maintain the current driveway access to SR16.

### Emergency Services

Design Options 1 and 2 for Segment 1 would permanently alter access to the CDF Station and the Rumsey Rancheria Fire Department by providing access to the improved SR16 by utilizing a portion of the existing SR16 that would be abandoned by the project. This new driveway would connect to SR16 at its intersection with Co Rd 78. Option 3 would maintain the current driveway access to SR16.

## 3.5.3 Avoidance, Minimization and/or Mitigation Measures

All affected utilities including wells, telephone, fiber optic, electrical, and gas lines will be relocated prior to construction. Utility lines will generally be relocated further away from SR 16 between the CRZ and the new right-of-way for SR 16.

The owners of private wells that will be impacted will be compensated through the RAP.

All emergency response units in the project area will be notified of the project construction schedule and will have access to SR16 throughout the construction period.

## TRAFFIC & TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

### 3.5.4 Regulatory Setting

The FHWA directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects. It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans and FHWA are committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

### 3.5.5 Affected Environment

#### Traffic

State Route 16 is a two-lane undivided rural highway with a posted speed limit of 55 miles per hour, except within urban areas where the speed limit is 25-35 mph.

Between 1985 and 2005, traffic volumes increased along State Route 16 by 3% per year, on average. Traffic increased by 55% between the years of 2001 and 2002. Since the 2001-2002 surge in traffic volumes, traffic volumes have begun to revert back to its original rate-of-growth. Over the next 25 years (2030), it is anticipated that overall traffic in this area will increase by 3% per year. This growth means that future traffic volumes are within the tolerable volume to capacity range for 2030.

#### Bicycle and Pedestrian Facilities

There are currently no designated bicycle or pedestrian facilities within the project area.

### 3.5.6 Impacts

#### Traffic Impacts

The project does not add additional vehicular capacity and is not expected to appreciably affect traffic volumes. Since the proposed project does not add capacity or induce additional travel a traffic study was not prepared for this project. No permanent negative impacts to traffic are anticipated.

### Bicycle and Pedestrian Impacts

The proposed project would add paved 2.4m (8 ft) shoulders to SR16, allowing pedestrian and bicycle use with ample space away from the flow of traffic. Future projects to create a Class II bike lane on the highway would benefit from the provision of wider shoulders.

In parts of the project area, the proposed project would shift the highway alignment, creating unused portions of pavement. Development of a new bikeway parallel to SR16 using these slivers of pavement is not a feature of this project.

### Construction Impacts

#### Transit

Construction of the proposed project would allow vehicles to move freely in two lanes and would accommodate turnouts for buses. Additionally, bus stops in the area are concentrated in populated areas, where construction would be limited.

#### Bicycles

Construction may conflict with the annual Davis Double Century bike race.

### 3.5.7 Avoidance, Minimization and/or Mitigation Measures

A transportation management plan (TMP) and stage construction plans will be prepared to address construction and traffic control issues.

If necessary, project construction will be temporarily suspended to accommodate the Davis Double Century bike race.

## 3.6 VISUAL / AESTHETICS

### 3.6.1 Regulatory Setting

FHWA in its implementation of NEPA directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.
Likewise, CEQA establishes that it is the policy of the State to take all action necessary to provide the people of the State "with enjoyment of aesthetic, natural, scenic and historic environmental qualities."

### 3.6.2 Affected Environment

The project area is predominantly rural in character with proximity to farms, orchards, ranches, Cache Creek Casino and the towns of Madison, Esparto and Capay. The gently sloping valley floor is framed by rolling hills of the California inner coastal range. The hills rise above the

valley floor approximately 549 m (1800 ft) to the northwest and 914 m (3000 ft) to the southwest. The views range from enclosed and restricted by both vegetation and landform to sweeping vistas of farmland, oak woodlands and distant hills. The orientation of the Cache Creek valley is from northwest to southeast and widens from approximately 1.6 km (1 mi) across out to the Sacramento Valley floor.

Mature trees lining sections of SR 16 are a defining feature of the valley, and are of particular local importance.

SR 16 from its intersection with SR 20 to Capay, KP 0.0/40.2 (PM 0.0/25.3) is eligible for designation as a California Scenic Highway.

### 3.6.3 Impacts

The project as proposed, would not substantially damage the existing scenic resources, or significantly degrade the existing visual character or quality of the site and its surroundings. The project, although reducing the amount of roadside vegetation, improves the openness of the travel experience along SR 16 by opening up new vistas and creating a safer driving environment. Creating the CRZ would increase the total area of bare soils bordering the roadway. These areas would be planted with native grasses and low growing vegetation. Storm water drainage patterns would be altered due to roadway realignment, earthwork and construction. Roadway light and glare may impact new areas. Several mature oak and ornamental trees lining the roadway would need to be removed to accommodate the proposed improvements.

The project as proposed would alter some of the visual resources that contribute to the rural character of the route and which have made it eligible for inclusion in the California Scenic Highway System.

The removal of the existing vegetation will impact the current visual character and interest of the route by moving back vegetation. This will open new views to the distant hills, agricultural land, residences and businesses, but will eliminate some of the close roadside views of vegetation and habitat that characterizes this rural highway.

Realignment will bring the roadway in closer to residences in some areas. The existing buffer and screen areas between roadway and residences would be reduced or eliminated in some areas exposing residences to an increase of light and glare.

New bridge construction will impact the topography, grades, vegetation and adjacent banks of the creeks.

### Taber's Corner

As part of the realignment of the Taber's Corner Curve, two options have been developed. The options differ in the placement of the roadway curve and the amount of impact the realignment will have on Taylor Creek and the surrounding residences. Both options will bring the roadway into a closer proximity to existing residences while removing screening vegetation, increasing light and glare, and increasing noise.

### Cache Creek Casino Frontage

As part of the realignment of the portion of SR 16 adjacent to the Cache Creek Casino, three options have been developed of varying distance from the Casino. All options would realign the roadway away from the existing roadway onto the adjacent farmland. This land has been used for row crops and grazing. The existing vegetation consists of grasses, a few scattered oaks and riparian creek side vegetation at Taylor Creek. The land is relatively flat with a few drainage ditches. Options 2 and 3 would move the roadway away from the casino development, directing the motorist view away from the casino to the surrounding countryside.

All options would require removal of creek side vegetation for the reconstruction of the Taylor Creek Bridge. Option 1 would require removal of some roadside vegetation located across from the Casino along the fence line. Option 2 would require the removal of one mature valley oak located in the field across from the eastern end Casino Parking. Option 3 will require the least amount of vegetation removal. All options avoid removal of the mature trees lining the existing roadway west of Taylor Creek.

## 3.6.4 Avoidance, Minimization and/or Mitigation Measures

The design and construction of all the elements of this project shall be implemented to minimize and mitigate impacts to the natural environment and visual resources, and to blend in with the natural landscape. With proper care, the eligibility for designation as a California Scenic Highway can be maintained.

Mitigation would be required for any existing native trees that are removed. Re-vegetation plans would be developed with consideration for biological and aesthetic values. The area between the edge of the CRZ and the proposed right of way lines provide an opportunity to replant rows of roadside trees. Please refer to the Biology section for mitigation planting requirements.
All trees within the CRZ will be removed, and the area will be replanted with native grasses to facilitate sight distance requirements, reduction of obstacles and erosion concerns. Mature trees within the area between the CRZ and the proposed right of way line will be preserved where feasible. Those trees that will be protected will be fenced off, preferably at the drip line (edge of the canopy).

A planting and/or screening plan will be implemented to reduce the impact of the increase in light and glare on existing residences to the degree practicable.
Aesthetic treatments will be considered for all new retaining walls and bridges.
For the new bridge guard-rail, incorporation of an "open" rail type will facilitate views to the surrounding landscape and as an appropriate replacement to the existing "open" guard-rail.

## 3.7 CULTURAL RESOURCES

### 3.7.1 Regulatory Setting

"Cultural resources" are defined as archaeological, traditional, and built environment (architectural) resources, which include but are not limited to buildings, structures, objects, districts, and sites. The primary federal and state laws that pertain to cultural resources are described below.

The 1966 National Historic Preservation Act (NHPA) set forth the national policy for recognizing and protecting historic properties. Under Section 106 of the NHPA, federal agencies are required to take into account the effects of their undertakings on historic properties. The implementing regulations for Section 106 (36 CFR Part 800) set forth the specific steps federal agencies must follow in order to take into account the effects of their projects on historic properties. In January 2004, the Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA) was established as the Federal Highway Administration's approach for taking into account the effects of the Federal Aid Transportation Program on historic properties in California and meeting compliance with Section 106 of the National Historic Preservation Act (36 CFR 800).

The National Register of Historic Places (NRHP), administered by the National Park Service under the Department of the Interior, is the nation's official list of historically significant cultural resources and is part of a national program to coordinate and support efforts to identify, evaluate, and protect historic and archaeological resources. Properties listed or eligible for listing in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture, and that retain integrity. For the purposes of Section 106, properties are evaluated to determine if they meet the eligibility criteria for listing in the National Register.

Under California law, the California Environmental Quality Act (CEQA) requires that a lead agency determine if there are historical resources within a project area that are listed in the California Register of Historical Resources (CRHR), or if additional properties not yet listed may be historical resources or legally defined unique archaeological sites for purposes of CEQA. If so, the lead agency must then determine if the proposed project has the potential to impact those resources. Properties either listed in the CRHR or determined by the lead state agency to be historical resources for purposes of CEQA both constitute historical resources for the purposes of CEQA. The CRHR was established under Section 5024.1 of the Public Resources Code and is the state equivalent to the NRHP. The CRHR includes all properties listed in or eligible for the NRHP, as well as California Historical Landmarks from number 770 on, and resources approved for listing by the state Historical Resources Commission.

### 3.7.2 Cultural Resource Investigation And Documentation

The State Historic Preservation Officer (SHPO) has been consulted with and has concurred upon the eligibility of the cultural resources identified within the project area.

An Area of Potential Effects (APE) was established for the proposed undertaking to account for all potential direct and indirect effects to cultural resources that may result from construction or other related activities associated with the project. The cultural resource investigation for the proposed project was undertaken within the limits of the established APE.

The cultural resource investigation for the project consisted of an archaeological inventory to identify all prehistoric and/or historic archaeological sites and features within the APE. The results of the archaeological inventory are documented in an Archaeological Survey Report (ASR). A historical resource study has also been conducted within the APE to identify and evaluate historical architectural properties and historic-era archeological sites within the APE. The results of the historical resource study are documented in the Historical Resources Evaluation Report (HRER). The HRER also documents the historic context of the project area and evaluates the significance of all affected historic-era resources within that context. An Extended Phase I excavation study was conducted at two locations to confirm the presence or absence of prehistoric archaeological deposits within the Area of Direct Impact (ADI), and a Phase II archaeological site evaluation excavation was conducted at one additional location to determine the significance of prehistoric archaeological deposits present within the ADI. The results of the Extended Phase I and Phase II studies are documented in a combined Extended Phase I and Phase II Excavation Report. The technical studies described above are summarized in a cover document known as the Historic Property Survey Report (HPSR), which serves as the

basic document for consultation with the SHPO. Additional documentation may be necessary based on the results of these studies, as discussed below.

Efforts to identify cultural resources within the project's APE included: (1) conducting a records and literature search at the Northwest Information Center of the California Historic Resources Information System at Sonoma State University; (2) Consultation with the Native American Heritage Commission, as well as local Native American tribes and individuals; (3) Consultation with local historic preservation interest groups and individuals, historical societies, and museums; and (4) a pedestrian field survey of the project study limits conducted by archaeologists and architectural historians who meet the Secretary of Interior's Professional Qualifications Standards in their relevant fields of study.

Archival research, consultation, and surveys resulted in the identification of 13 cultural resources within the APE for the proposed project, including: one prehistoric archaeological site (CA-YOL-207); one combination prehistoric/historical archaeological site (CA-YOL-1235/H); four historical resources containing both structures and archaeological deposits (CA-YOL-200H, CA-YOL-202H, CA-YOL-205H, CA-YOL-209H); five historical archaeological sites (CA-YOL-201H, CA-YOL-203H, CA-YOL-204H, CA-YOL-208H, CA-YOL-210H); and two historic-era linear resources (CA-YOL-189H, CA-YOL-206H). Built Environment Resources

The APE for the proposed project contains six built environment resources: four residential properties and two historic-era linear resources. One of the four residential properties evaluated, Tabers' Corner, is eligible for listing in the NRHP as an outstanding example of a late 19$^{th}$ and early 20$^{th}$ century family run farming complex, and is a historical resource for the purposes of CEQA. The remaining three residential properties do not appear to be eligible for either the NRHP or the CRHR. The APE is located within the HPSR.

Neither of the two historic-era linear resources within the APE for the proposed project; the Vaca Valley & Clear Lake Railroad and the Toll Road, are eligible for listing in the NRHP or CRHR due to a lack of integrity.

### Archeological Resources

The Phase I (inventory) investigation resulted in the identification of eleven archaeological resources within the project study limits: one prehistoric site, one combined prehistoric/historic-era site, and nine historic-era sites.

An Extended Phase I investigation was conducted within the ADI at two prehistoric archaeological sites (CA-YOL-199/H and CA-YOL-207) in an effort to determine the presence

or absence of intact archaeological deposits within the ADI. The results of the Extended Phase I investigation were negative, indicating that no intact archaeological deposits were identified within the ADI at either location.

A Phase II evaluation was conducted within the ADI at a combined prehistoric/ historical archaeological site (CA-YOL-125/H). This investigation determined that the portion of the site within the ADI is a contributor to the site's overall eligibility for its ability to address important information in prehistory. The portion of this site within the ADI is eligible for inclusion in the NRHP as a contributor to a larger resource and is a historical resource for the purposes of CEQA.

Two additional archaeological sites within the APE are assumed eligible for the purposes of the undertaking. Although the portion of the sites within the ADI are either not eligible or not considered contributing elements of a larger resource, the remaining portion of the sites were not tested but will be treated as eligible for the purposes of this project and protected from all project impacts. Another archaeological deposit within the ADI does not appear to be eligible as a contributing element to the larger resource. The remaining seven archaeological sites were determined ineligible for either the NRHP or the CRHP.

### Built Environment Resources

The APE for the proposed project contains six built environment resources: four residential properties and two historic-era linear resources. One of the four residential properties evaluated, Tabers' Corner, is eligible for listing in the NRHP as an outstanding example of a late 19$^{th}$ and early 20$^{th}$-century family run farming complex, and is a historical resource for the purposes of CEQA. The remaining three residential properties do not appear to be eligible for either the NRHP or the CRHR.

Neither of the two historic-era linear resources within the APE for the proposed project, the Vaca Valley & Clear Lake Railroad and the Toll Road, are eligible for listing in the NRHP or CRHR due to a lack of integrity.

## 3.7.3 Impacts

The SHPO has been consulted with and is anticipated to concur with the finding that the project adversely impacts one archeological site and one built environment resource.

### Archeological Resources

Although much of the integrity of the combined prehistoric/ historical archaeological site within the ADI has been compromised due to the previous construction of the road, areas of intact deposits survive within the project's APE that have yielded a wide variety of cultural artifacts.

In addition, the presence of prehistoric human bone fragments within the ADI and the fact that burials have been identified at the site in the past suggests that additional human remains may be encountered during ground disturbing activity.

The proposed project includes road widening through the site, which would result in the removal of deposits that are considered contributing elements to the site's overall eligibility under Criterion D. Consequently, the project would result in physical destruction or damage and is therefore considered an adverse effect.

### Built Environment Resources

The horizontal curve correction proposed at Tabers' Corner would result in the removal of approximately 30 almond trees dating back to the 1890's. The trees are within the boundary of the historic district and are considered contributing elements of the setting. The proposed project, therefore, would result in the "physical destruction of … part of the property," and "change of … physical features within the property's setting that contribute to its historic significance." Consequently, the proposed project would have an adverse effect on the historic nature of Tabers' Corner.

## 3.7.4 Avoidance, Minimization and/or Mitigation Measures

### Built Environment Resources

Caltrans has considered alternatives that avoid impacts to the Tabers' Corner historic site; however, the alternatives were rejected as too damaging to other environmental resources. The Caltrans has, however, attempted to minimize adverse effects by redesigning the proposed improvements in the vicinity of the resource. As a result, less of the resource will be affected, but impacts cannot be avoided altogether. In order to mitigate for the adverse effect, a Memorandum of Agreement (MOA) will be prepared detailing the compensatory measures to be taken.

### Archeological Resources

In order to mitigate for the adverse effect to the combined prehistoric/ historical archaeological site a Phase III Data Recovery investigation will be implemented, in accordance with the terms of a Memorandum of Agreement (MOA) that will be executed between the Federal Highway Administration and the State Historic Preservation Officer (SHPO), to mitigate the effects of the project on the site. The MOA details the measures to be taken to complete the Phase III data recovery investigation.

Environmentally Sensitive Area (ESA) fencing will be used to protect the portions of the site outside of the ADI limits

If prehistoric and/or historical artifacts are discovered during construction, all earth moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that disturbances and activities shall cease. The County Coroner must be notified of the find immediately so that he/she may ascertain the origin. Pursuant to Public Resources Code Section 5097.98 if the remains are thought to be Native American, then the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the most likely descendant (MLD). The MLD may inspect the remains with the approval of the landowner or the landowners' authorized representative. The MLD must complete this inspection within 24 hours after notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis.

The designated Most Likely Descendant (MLD) has been contacted regarding the treatment of human remains, but further consultation is needed to come to an agreement regarding the disposition of the remains, as well as the probable need for monitoring during project construction in the area of CA-YOL-125 due to the potential for encountering additional human remains.

## 3.8 FLOODPLAIN

### 3.8.1 Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

### 3.8.2 Affected Environment

The 100-year floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the 100-year floodplain."

SR 16 is currently below the elevation of the 100-year floodplain between the town of Esparto and the I-505 interchange. The road routinely floods during storms.

### 3.8.3 Impacts

The proposed project would raise SR 16, between Esparto and I-505, to bring it out of the 100-year floodplain. The roadway will be raised by placing additional fill material beneath it. This fill would encroach upon the 100-year floodplain.

The proposed project would encroach on the floodplain(s) at the following locations.

- Taylor Creek Bridge
  KP 32.66-32.72 (PM 20.29-20.33)
- SR 16 and County Road 80
  KP 34.37-34.42 (PM 21.36-21.39)
- Confluence of Salt and Taylor Creek
  KP 35.68-35.86 (PM 22.17-22.28)
- Between Esparto and Madison
  KP 46.81-49.34 (29.08 –30.66)
- From Madison to Interstate 505
  KP 49.85-51.41 (30.98-31.95)

The Floodplain Hydraulic Study prepared for this project concluded that the project would have a less than significant impact on the 100-year base floodplain and would pose no additional risk to adjacent properties.

### 3.8.4 Avoidance, Minimization and/or Mitigation Measures

Two alternative approaches have been developed to compensate for the fill material in the 100-year flood plain between Esparto and I-505.

Option 1: Yolo County Flood Improvement Partnership
This option is being developed in cooperation with Yolo County to lessen the effects of flooding on the community of Madison. SR 16 would be raised above the 100-year floodplain and the

highway embankment would redirect flood flows around the north of Madison. Madison would continue to be susceptible to flooding from the south and west; however, many flood events would be less severe. In addition to raising the level of SR 16, the canal network will be improved to accommodate flood flows and easements will be purchased for adjacent farmland to detain flood flows and provide for slow release into existing channels.

Option 2: Widen and Raise Existing SR 16 above the 100-year Floodplain
This option raises SR 16 above the 100-year flood plain and passes flood flows under the highway at most of the current locations. The volume of the flows at each location after project construction would match the volume of the pre-project flows except at the Madison Migrant Housing Center. The flood flow that currently enters the Madison Migrant Housing Center would be redirected to the east around the Madison Sewer Ponds.

## 3.9 WATER QUALITY AND STORM WATER RUNOFF

### 3.9.1 Regulatory Setting

The primary federal law regulating Water Quality is the Clean Water Act. Section 401 of the Act requires a water quality certification from the State Board or Regional Board when a project: 1) requires a federal license or permit (a Section 404 permit is the most common federal permit for Caltrans projects), and 2) will result in a discharge to waters of the United States.

Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System (NPDES) permit system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. The NPDES was established by the U.S. Environmental Protection Agency (EPA) and implemented by the states Regional Water Quality Control Boards. Caltrans currently has a statewide permit for the NPDES program. Caltrans has developed a State Storm Water Management Plan (SWMP) designed to reduce the discharge of pollutants associated with storm water and non-storm water to the maximum extent practicable. The SWMP describes how Caltrans will comply with NPDES requirements through the application of various Best Management Practices (BMPs). BMPs include those practices that provide pollution control benefit, are feasible to implement and meet legal and legislative funding restraints

In addition to BMPs, the SWMP requires a Storm Water Pollution Prevention Plan (SWPPP) for projects where the impacts are greater than 2 ha (5 ac). The SWPPP requires that pollution sources be identified and also identifies and commits to implementing storm water pollution

prevention measures to reduce pollutants in storm water discharges from construction sites both during construction and after construction has been completed.

Since the SWPPP will be prepared during final design the following discussion focuses on anticipated pollution controls.

### 3.9.2 Affected Environment

The hydrology of the project study area is driven primarily by irrigation and runoff from precipitation events. Intermittent creeks within the project study area include Palmer Canyon Creek, Chimney Canyon Creek, Brooks Creek, Salt Creek, Willow Creek, Lamb Valley Slough, and South Fork Willow Slough. The majority of these creeks are tributaries to Cache Creek. Based on evidence within the project vicinity as well as analysis of topographic maps, the creeks appear to convey runoff from the hills surrounding the Capay Valley during the wet season as well as agricultural runoff. The sloughs appear to convey water year round.

Cache Creek lies north of and runs nearly parallel to SR 16 in the project vicinity, and its proximity to the project study area varies from 0.3 km (0.18 mi) to 3.5 km (2.2 mi). Capay Diversion Dam, located 0.9 km (0.56 mi) north of the project study area just west of the town of Capay, diverts water from Cache Creek into a network of 282 km (175 mi) of canals that deliver water to the Yolo County Flood Control & Water Conservation District. One of the two main canals in this water delivery system, Winters Canal, crosses the project study area near the town of Capay before traveling south toward Putah Creek (Moyle undated). At its closest point to the project study area, Putah Creek is 17.9 km (11.1 mi) south. Both Cache Creek and Putah Creek are tributaries to the Sacramento River.

Various agricultural and roadside ditches are also scattered throughout the project study area, the majority of which are non-jurisdictional features. Many of the ditches are conveyance facilities purely for water originating from agricultural sources and should the pumps be rendered inactive, the ditches would revert to their natural upland state and not carry natural runoff. The several jurisdictional ditches that traverse the study area lead directly to larger jurisdictional waters or have been channelized.

#### Mercury Contamination

The Central Valley Regional Water Quality Control Board (RWQCB) has indicated that Cache Creek, and to a lesser degree Taylor Creek, are known to be contaminated with mercury. Typically, the highest mercury loads in Cache Creek are located between Rumsey and the downstream settling basin near Woodland. Most of the mercury is believed to be located within the Cache Creek floodplain downstream of Clearlake and not necessarily in the small tributaries

impacted by this project. There are no known mercury mines located within the tributaries upstream of the project area.

Taylor Creek, which lies within the project area, may contain relatively low concentrations of mercury however, no sediment data was available. Winters Canal, which supplies water to Yolo County for agricultural use, comes out of Cache Creek therefore; water and sediment may have higher concentrations of mercury.

### 3.9.3 Impacts

Where the project would disturb sediment in Taylor Creek or Winters Canal there is a potential that mercury may be disturbed.

#### Construction Impacts

The project will involve large amounts of excavation, earth moving, and stockpiling. Once disturbed, the soil will be more susceptible to erosion until vegetation is re-established.

### 3.9.4 Avoidance, Minimization and/or Mitigation Measures

Pre-construction sediment samples will be obtained from watercourses impacted by the project and analyzed for mercury to show background concentrations, samples will also be taken at the same locations post-construction. The specific locations to be monitored will be determined in consultation with the RWQCB.

If soil is borrowed from a site within the area of concern, soil samples will be analyzed to determine the mercury content in the borrow material prior to its use on site. The results of these tests will be shared with the RWQCB to determine if the borrow material may increase mercury loading in Cache Creek.

Because increases in the mercury loading in this area of the watershed can be attributed to re-suspension of soils in the area, a higher level of erosion control will be utilized on the project at a minimum and redundant sediment control Best Management Practices (BMPs) will be considered for utilization throughout the life of the project. Any disturbed creek beds will be fully stabilized to prevent scouring or additional erosion. To minimize any discharge of sediment, earthwork will occur during the dry months.

#### Erosion Control

Erosion control measures will be implemented during construction of the proposed project in non-riparian upland areas. These measures will conform to the provisions in Section 20-3 of the Caltrans Standard Specifications and the special provisions included in the contract for the project.

Erosion control work will consist of application of erosion control materials within non-riparian upland areas to embankment slopes, excavation slopes, and other areas designated by the project Engineer. All materials used for erosion control work will conform to Section 20-2 of the Caltrans Standard Specifications and the specifications discussed below:

- Activities that increase the erosion potential within the project study area will be restricted to the fullest extent possible to the relatively dry summer and early fall period to minimize the potential for rainfall events to mobilize and transport sediment into any wetland feature or body of water adjacent to and downstream from the study area.
- The removal of vegetation will be minimized whenever possible.
- Weed-free mulch will be applied to areas where vegetation has been removed to reduce short-term erosion as soon as feasible after construction. Soils will not be left exposed during the rainy season.
- Filter fences and catch basins will be placed below all construction activities at the edge of all streams, creeks, and drainage ditches in the project study area in order to intercept any sediment. These structures will be installed prior to any clearing or grading activities.
- Spoil sites will be located such that they do not drain directly into streams, creeks, or drainage ditches that can potentially lead to wetland features downstream from the construction areas, if possible. If a spoil site drains into ditch leading to a wetland feature downstream from the construction area, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be graded to reduce the potential for erosion.
- Sediment control measures will be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition throughout the year.
- Any additional construction best management practices (BMPs) designed to minimize erosion and sedimentation will be implemented prior to the onset of construction.

## 3.10 GEOLOGY

### 3.10.1 Regulatory Setting

The Historic Sites Act of 1935 establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act.

### 3.10.2 Affected Environment

A number of faults (e.g., Capay, Sweitzer, and West Valley faults) occur in the western part of the county but these show displacement more than 1.6 million years ago. Accordingly, these

faults are generally considered inactive. No known faults are located in any of the major inhabited areas of the county.

However the area is generally designated as a Seismic Risk Zone 3, indicating that the potential for earthquake damage due to strong shaking and slope failure does exist.

### 3.10.3 Impacts

The project is not expected to impact any unique geologic features or increase the risk of damage from seismic activity.

### 3.10.4 Avoidance, Minimization and/or Mitigation Measures

Following Caltrans Standard Specifications for design and construction of the project will minimize any potential impacts to structures from soils and seismicity.

## 3.11 HAZARDOUS WASTE / MATERIALS

### 3.11.1 Regulatory Setting

Federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous wastes. Other federal laws relating to hazardous waste include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the laws listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the Federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

### 3.11.2 Affected Environment

An Initial Site Assessment (ISA) was prepared in November of 2000, and a supplemental ISA was prepared January of 2004 to assess the presence of hazardous materials within the project area. The ISA includes information gathered from field surveys, historical research, and review of regulatory files.

The ISA concluded that the potential for hazardous waste exists at the following locations.

**TABLE 4 POTENTIAL HAZARDOUS WASTE SITES**

| LOCATION | ACTIVITY ON SITE |
|---|---|
| CR 89/SR 16 (SE corner) in Madison | Potential Underground Storage Tank |
| 1 mile west of Madison on Hwy 16 | Hazardous Waste Spill |
| 26797 Hwy 16, BR Co., Esparto | Site Remediation |
| 30288 Hwy 16, Solano Concrete Plant | One Above Ground Storage Tank |
| 37288 Hwy 16, Solano Concrete Plant | One Underground Storage Tank |
| 16823 Hwy 16, Fullerton Auto Shop | Various Maintenance Activities |
| 14315 Hwy 16 at Wintum Rd, Brooke's Norcal Petro Service Station | Two Underground Storage Tanks |

Much of the yellow traffic striping used on SR 16 is known to contain lead, chromium, and cadmium at concentrations high enough to be classified as a hazardous material.
The RWQCB has indicated that Cache Creek, and to a lesser degree Taylor Creek, are known to be contaminated with mercury. More detailed information can be found in the Water Quality and Storm Water Run-Off section of this document.

### 3.11.3 Impacts

If the final approved project design would impact any of the properties identified in the ISA, the nature and extent of contamination will be further evaluated.
Any structures demolished, as part of the project will be evaluated for asbestos and lead.

### 3.11.4 Avoidance, Minimization and/or Mitigation Measures

Pre-construction Studies

Prior to construction, a Preliminary Site Investigation (PSI) will be conducted to evaluate the nature and extent of contamination at any of the sites that may be affected by the project. If hazardous waste is present, a detailed site investigation will be conducted to determine the volume and concentration of hazardous material. If hazardous waste is present in the construction zone, a Remedial Actions Options Report will be completed to address the proper handling, cleanup, and disposal of the hazardous material. If hazardous materials contamination is discovered, then Caltrans will ensure that the contamination is remediated to an acceptable level prior to commencing with construction activities in that area.

Prior to demolishing or otherwise altering any structures, Caltrans will complete a survey for material containing asbestos and lead based paint. If contamination is discovered, Caltrans will obtain the necessary National Emission Standards for Hazardous Air Pollutants (NESHAP) permits from the air quality management district. The contaminated materials will then be abated to an acceptable level prior to construction.

When thermoplastic traffic striping containing hazardous materials is removed, the grindings will be captured and disposed of at an approved hazardous waste disposal facility. Thermoplastic striping that is applied to the new road surface will not contain any hazardous materials at levels that would cause the striping to be considered hazardous waste.

Accidental Spills

Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants within the project study area:

- Storage of hazardous materials, chemicals, fuels, and oils (such as pesticides or herbicides) will not be performed within 45 m (150 ft) of any drainage, wetland, water supply well, spring or other water feature.
- A spill prevention plan will be implemented for potentially hazardous materials. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting of any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching wetland features.

# 3.12 AIR QUALITY

## 3.12.1 Regulatory Setting

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for carbon monoxide (CO), nitrogen dioxide ($NO_2$), ozone ($O_3$) and particulate matter that is 10 microns in diameter or smaller ($PM_{10}$).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that do not conform to the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels - first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity is concerned with how well the region is meeting the standards set for the pollutants listed above. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned for a region over a period of years, usually 20 years. Based on the projects included in the RTP, an air quality model is run to determine whether the implementation of those projects would result in a violation of the Clean Air Act. If no violations would occur, then the regional planning organization, such as Sacramento Area Council of Governments (SACOG) and the appropriate federal agencies, such as the FHWA, make the determination that the RTP, or in this case the Metropolitan Transportation Plan (MTP) is in conformity with the Clean Air Act. Otherwise, the projects in the MTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the MTIP, then the proposed project is deemed to be in conformity at the regional level.

If a region meets the standard for a given pollutant, then the region is said to be in “attainment” for that pollutant. If the region is not meeting the standard, then it is designated a “non-attainment” area for that pollutant. Areas that were previously designated as non-attainment areas but have recently met the standard are called “maintenance” areas.

Conformity at the project-level is also required. Again, the pollutants of concern are: CO, $NO_2$, $O_3$ and $PM_{10}$. If a project is located in a non-attainment or maintenance area for a given

pollutant, then additional air quality analysis and reduction measures in regard to that pollutant is required. This is most frequently done for CO and $PM_{10}$.

### 3.12.2 Affected Environment

This project is located within the Sacramento Valley Air Basin and under the jurisdiction of the Yolo-Solano Air Pollution Control District.

Under the NAAQS, Yolo County is classified as "in attainment" for CO and $PM_{10}$, and "non-attainment" for $O_3$. Under California Ambient Air Quality Standards, Yolo County is classified as "in attainment" for CO, and "non-attainment" for $PM_{10}$ and $O_3$.

**TABLE 5 STATE AND FEDERAL AIR QUALITY ATTAINMENT**

| Criteria Pollutant | Federal Standard (NAAQ) | Federal Attainment Status | State Standard | State Attainment Status |
|---|---|---|---|---|
| Carbon Monoxide (CO) | 35 ppm (1 hour avg.)<br>9 ppm<br>(8-hour avg.) | Attainment | 20 ppm (1 hour avg.)<br>9 ppm (8 hour avg.) | Attainment |
| Nitrogen Dioxide ($NO_2$) | 0.053 ppm<br>(1-hour annual avg.) | Attainment | 0.25 ppm (1 hour avg.) | Attainment |
| Ozone ($O_3$) | 0.12 ppm (1 hour avg.) | Non-Attainment | 0.09 ppm (1 hour avg.) | Non-Attainment |
| Particulate Matter ($PM_{10}$) | 150 $\mu g/m^3$ (annual arithmetic mean) | Attainment | 50 $\mu g/m^3$ (annual arithmetic mean) | Non-Attainment |

ppm=parts per million

### 3.12.3 Impacts

Air Quality for transportation projects is evaluated on both a regional impact basis and local (project-level) impact basis. Regional impacts are related to transportation criteria air pollutants. These air pollutants are Ozone and $PM_{10}$. Local impacts are related to transportation criteria air pollutants (CO).

#### Regional Analysis

The Metropolitan Transportation Plan (MTP) for 2005 was found to conform by the SACOG in 2002**.** The design concept and scope of the proposed project is consistent with the project description in the MTP for 2025, and the assumptions in SACOG's regional emissions analysis. This project is in included in SACOG's MTP and Metropolitan Transportation Improvement Program (MTIP). As such, a satisfactory affirmative regional conformity determination has been made.

### Local (Project-Level CO) Analysis

The methodology of this analysis is based on the Caltrans Transportation Project-Level Carbon Monoxide Protocol, UCD-ITS-RR-97-21 by the Institute of Transportation Studies, UC Davis. According to the Protocol, this project:

- Does not significantly increase vehicles operating in cold start mode
- Does not significantly increase traffic volumes
- Does not worsen traffic flow

Therefore, the planned project is not likely to worsen air quality and no local (project-level CO) impacts are anticipated.

## 3.12.4 Construction Impacts

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or $PM_{10}$, would be the primary short-term construction impact that may be generated during excavation, grading and hauling activities. Both fugitive dust and construction equipment exhaust emissions would be temporary and transitory in nature.

## 3.12.5 Avoidance, Minimization and/or Mitigation Measures

Caltrans Standard Specifications, a required part of all construction contracts, should effectively reduce and control emission impacts during construction. The provisions of Caltrans Standard Specifications, Section 7-1.01F, Air Pollution Control, and Section 10 Dust Control require the contractor to comply with all pertinent rules, regulations, ordinances, and statues of the local air district.

Typical measures used to minimize construction-related emissions include, but are not limited to, the following:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 0.6 m (2 ft) of freeboard (i.e. the minimum required space between the top of the load and the top of the trailer.
- Sweep daily all paved access roads, parking areas, and staging areas at construction sites.
- Hydro-seed or apply non-toxic soil stabilizers to inactive construction areas that are inactive for ten days or more.
- Enclose, cover, or water twice daily, exposed stockpiles of dirt or sand.
- Limit truck speeds to 15 mph in the area under construction.

# 3.13 NOISE

## 3.13.1 Regulatory Setting

Noise mitigation/abatement must be considered for Type I projects. A Type I project is defined by 23 CFR 772 as follows: A proposed Federal or Federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. A Memorandum issued October 20, 1998 by FHWA offers some guidance in defining Type I projects. A small change in alignment in a densely developed urban area may have a significant effect, whereas a much greater change in alignment in a suburban or rural area may not have a significant effect.

## 3.13.2 Affected Environment

The SR 16 Safety Improvement project traverses a primarily rural area. The proposed improvements do not increase capacity nor do they generate additional traffic. The project limits do not extend into the communities of Capay and Esparto but the roadway will be realigned in some locations bringing the roadway closer to residences. Based upon the project's scope, context, and setting, the project is not considered a Type I project. No further noise analysis is required.

## 3.13.3 Construction Impacts

During the construction phases of the proposed project, noise from construction activities may intermittently dominate the noise environment.

## 3.13.4 Avoidance, Minimization and/or Mitigation Measures

Construction noise is regulated by Caltrans standard specifications Section 7-1.01I, "Sound Control Requirements". These requirements state that noise levels generated during construction shall comply with applicable local, State, and Federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturer's specifications.

# 3.14 CONSTRUCTION

## 3.14.1 Affected Environment

Construction of the proposed project would occur within the temporary impact lines as shown on the project maps included in Appendix A.

### 3.14.2 Impacts

Please see the following sections for discussions of construction related impact:

- Noise
- Storm Water
- Air
- Traffic
- Hazardous Materials
- Wildlife

### 3.14.3 Avoidance, Minimization and/or Mitigation Measures

Please see the individual sections for discussions of construction related impacts.

## 3.15 NATURAL ENVIRONMENT

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species.
The primary plant communities present within the study area include:

- oak woodland,
- valley foothill riparian, and
- annual grassland.

### 3.15.1 Oak Woodland Habitat

Oak woodlands are thought to have the richest wildlife species abundance of any habitat in California, as some 331 species depend on this habitat to varying degrees. The key connection between much of the wildlife and oak woodlands is through the Valley oaks predominate the canopy of the valley foothill hardwood conifer habitat within the project area. Gray pines (Pinus sabiana) also compose the tree canopy, with annual grasses and forbs predominating the understory vegetation layer.

Blue oak and Interior live oak (Quercus wislizenii) occur less often within the project area. Poison oak shrubs (Toxicodendron diversilobum) as well as annual grasses including wild oat, soft chess, ripgut brome, and hare barley populate the understory vegetation.
A total of 814 valley oaks, 51 interior live oaks and 14 blue oaks, with a DBH 4” or greater, occur within the project ESL.

### 3.15.2 Impacts

Construction of the proposed project will directly impact several oak species. These direct impacts include removal, thinning, or root damage during ground disturbing activities associated with the proposed project. Indirect impacts to the remaining oak trees located in the temporary impact zone could include dust generation and changes in hydrology that could alter the physiology of the trees such that their continued existence is jeopardized.

Construction of the project will result in the removal of oak woodland, and this represents a permanent loss of important habitat for wildlife. Isolated oak trees remaining following project construction will still provide some habitat for wildlife. Construction of the project will permanently impact between 0.03 ha (0.06 ac) and 0.11 ha (0.27 ac) of oak woodland habitat, and temporary impacts will be between 0.46 ha (1.13 ac) and 0.60 ha (1.49 ac).

Dependent upon project alternative, construction will remove between 339 and 374 valley oak trees, between 17 and 19 interior live oak trees, and 12 blue oak trees.

Table 6 Tree Removal within the Project Area

| Segment | Option | Valley Oak | Interior Live Oak | Blue Oak | Black Walnut | Totals |
|---|---|---|---|---|---|---|
| Segment 1 | Option 1 | 37 | 8 | 0 | 184 | 229 |
| | Option 2 | 33 | 9 | 0 | 184 | 226 |
| | Option 3 | 32 | 9 | 0 | 182 | 223 |
| Segment 2 | Option 1 | 39 | 0 | 0 | 20 | 59 |
| Segment 3 | Option 1 | 162 | 1 | 0 | 18 | 181 |
| | Option 2 | 172 | 1 | 0 | 26 | 199 |
| | Option 3 | 172 | 1 | 0 | 26 | 199 |
| Segment 4 | Option 1 | 88 | 8 | 12 | 68 | 176 |
| Segment 5 | Option 1 | 7 | 0 | 0 | 1 | 8 |
| Segment 6 | Option 1 | 11 | 0 | 0 | 3 | 14 |
| | Option 2 | 11 | 0 | 0 | 3 | 14 |

### 3.15.3 Avoidance, Minimization and/or Mitigation Measures

Caltrans will implement the following mitigation measures to address impacts associated with the loss of native oak trees (DBH > 4 inches):

- Caltrans will site temporary detour routes such that they minimize the removal and disturbance of native trees.
- Oak trees removed (with a DBH > 4 in) as a result of project construction activities will be replaced within a suitable area at a minimum ratio of one seedling planted per inch DBH of tree removal.
- All plant stock should be obtained locally to ensure genetic compatibility.
- Replacement seedlings/ seeds will be planted in late fall to allow for an increased probability of establishment success.

Replacement tree planting will exhibit a 75 percent survival rate following a ten-year monitoring interval. The planting area will be inspected by Caltrans on a regular basis at the following intervals:

- Immediately after planting (Year 0)
- At the beginning of the first growing season (Year 1)
- At the end of the first growing season (Year 1)
- At the end of each successive growing season (Years 2 through 10)
- At each monitoring level, the number of surviving trees will be counted to determine compliance with the 75 percent survival rate criteria. In the event that the survival rate falls below 75 percent, the plant area will be will be restocked to achieve success.

Implementation of conservation measures will be sufficient to address the loss of native oak trees associated with the proposed project.

### 3.15.4 Cumulative Impacts to Oak Woodlands

Oak woodlands have been greatly impacted throughout the past. Statewide more than a third of all oak woodlands have been lost since the settlement of California by Europeans; of an estimated 10-12 million acres, only seven million remain. Of the remaining oak woodlands, most have been modified or degraded, and only about four percent are formally protected. Most of the loss of oak woodlands has been due to the ever-increasing urban and suburban growth of California. The clearing of oaks has also been done for farming, ranching, and firewood.

Impacts to oak woodlands are ongoing, and the impacts of the proposed construction project will be additive to those impacts associated past, present, and future projects.

### 3.15.5 Riparian Habitat

Riparian vegetation is critical to the quality of in-stream habitat and aids significantly in maintaining aquatic life by providing shade, food, and nutrients that form the basis of the food

chain. Riparian vegetation also supplies in-stream habitat when downed trees and willow mats form scour pools and logjams important for fish, amphibians, and aquatic insects. More than 225 species of birds, mammals, reptiles, and amphibians depend on California's riparian habitats. Riparian vegetation in California makes up less than 0.5% of the total land area, an estimated 145 000 ha (58,704 ac).

### Survey Results

Valley foothill riparian habitat within the study area occupy approximately 6.46 ha (15.97 ac) and are dominated by Fremont's cottonwood (Populus fremontii ssp. fremontii), valley oak (Quercus lobata), and Northern California black walnut (Juglans californica var. hindsii). The understory includes wild grape (Vitus californica), wild rose (Rosa californica), Himlayan blackberry (Rubus discolor), blue elderberry (Sambucus mexicana), poison oak, perennial ryegrass (Lolium perenne), and velvet grass (Holcus lanatus). Common herbaceous species that occur in the understory include miner's lettuce (Claytonia perfoliata), white sweetclover (Melilotus alba), and common monkeyflower (Mimulus guttatus). Noxious weed species observed in valley oak riparian habitat include Italian thistle, yellow star thistle, field bindweed, Bermuda grass, and Johnson grass.

## 3.15.6 Impacts

Construction of the project will result in the temporary disturbance and permanent loss of valley foothill riparian habitat, including riparian wetlands. Impacts to valley foothill riparian habitat will require mitigation. Depending upon which options are chosen for each segment of the project, permanent impacts to Valley foothill riparian are between 0.43 ha (1.06 ac) and 0.76 ha (1.88 ac), and temporary impacts of between 1.0 ha (2.48 ac) and 2.60 ha (6.42 ac).

Table 7 Valley Foothill Riparian Habitat Impacts

| Segment | 1 | | | 2 | 3 | | 4 | 5 | 6 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Option | 1 | 2 | 3 | 1 | 1 | 2 | 1 | 1 | 1 | 2 |
| Permanent Impact Area | 0.19 ha (0.48 ac) | 0.11 ha (0.27 ac) | 0.11 ha (0.27 ac) | - | - | 0.04 ha (0.09 ac) | 0.08 ha (0.19 ac) | - | - | - |
| Temporary Impact Area | 0.13 ha (0.33 ac) | 0.11 ha (0.28 ac) | 0.16 ha (0.40 ac) | 0. 06 ha (0.15 ac) | 0.02 ha (0.05 ac) | 0.16 ha (0.39 ac) | 0.06 ha (0.14 ac) | - | - | - |

## 3.15.7 Avoidance, Minimization and/or Mitigation Measures

Caltrans will compensate for permanent impacts on riparian habitat due to project construction. The compensation will be provided at a minimum ratio of 3:1 (three acres restored or created for every one acre impacted). Final compensation acreage will be determined based on the final

project design. Compensation may be a combination of on or offsite restoration or creation. As compensation for the removal of riparian vegetation, Caltrans will implement a mitigation plan that includes the following:

Caltrans will prepare a mitigation and monitoring plan for creating or enhancing riparian habitat in the project vicinity. The mitigation plan will describe where and when mitigation will occur and who will be responsible for developing, implementing and monitoring the mitigation area. The following factors will be assessed as part of the plan: soils, hydrology (including groundwater levels and surface inundation), land use, potential disturbances, habitat functions, costs associated with maintaining the plantings and overall potential for survival. Potential offsite mitigation areas in the Cache Creek corridor that could be used to create or enhance riparian habitat include: a) riparian areas that currently support nonnative species (e.g., giant reed) that could be removed and replanted with native riparian species; and b) sparsely vegetated or degraded riparian areas that could be enhanced by planting native woody species.

The mitigation plan will include a list of recommended plant species, design specifications, an implementation plan, a maintenance program, a monitoring program and identification of appropriate methods for eradicating infestations of weeds. Caltrans will retain a qualified biologist to conduct at least ten years of monitoring to document the degree of success or failure in achieving success criteria (to be determined as part of the mitigation plan) and to identify remedial actions. Annual monitoring reports will be submitted to the CDFG, the USACE and other interested agencies. Each report will summarize data collected during the monitoring period, describe how the habitats are progressing in terms of the success criteria, and discuss any remedial actions performed. Additional reporting requirements imposed by permit conditions will be incorporated into the mitigation plan and implemented as appropriate.

### 3.15.8 Cumulative Impacts

Statewide, riparian vegetation has been greatly impacted throughout recent history. Riparian habitats have been identified as the most important habitats to landbird species in California. Riparian vegetation in California makes up less than 0.5% of the total land area, an estimated 145,000 ha. Yet, riparian habitats have long been recognized as important to ecosystem integrity and function across landscapes.yet they have been removed during the past 150 years. Reservoir construction, levee and channelization projects, livestock grazing, timber harvest, water pollution, introduction of non-native species, gravel and gold mining, and clearing for agricultural and domestic uses have all contributed to riparian destruction.

Cache Creek and Willow Slough are among the seven key riparian areas identified in the Yolo HCP/NCCP. An estimate of the amount of riparian habitat in the Central Valley indicates that within the 'Valley Putah-Cache' basin approximately 1,199 ha (roughly 3%) of riparian habitat remains. Of this acreage, planned and proposed urban development identified in the Yolo Habitat/Natural Communities Conservation Plan (in draft 2001) will result in the loss of 82 acres of riparian habitat.

### 3.15.9 Annual Grasslands

Annual grassland habitat in the study area is dominated by non-native annual grasses, including wild oats (Avena fatua), soft chess (Bromus hordeaceus), ripgut brome (Bromus diandrus), red brome (Bromus madritensis ssp. rubens), and hare barley (Hordeum murinum ssp. leporinum).

#### Survey Results

Approximately 6.94 ha (17.15 ac) of annual grassland habitat occur within the study area. These grasslands occur mostly on the flat plains and rolling foothills along SR 16. Noxious weed species observed in this habitat type include Italian thistle (Carduus pycnocephala), yellow star thistle (Centaurea solstitialis), field bind weed (Convolvulus arvensis), dodder (Cuscuta sp.), Bermuda grass (Cynodon dactylon), tumbleweed (Salsola tragus), Johnson grass (Sorghum halapense), and puncture vine (Tribulus terrestris).

Given the predominance of non-native, invasive species in annual grassland habitat, this greatly reduces the capacity of this habitat type to provide important foraging habitat for species such as Swainson's hawk and nesting habitat for species such as burrowing owl. Invasive species are discussed later in this chapter.

### 3.15.10 Impacts

Construction of the proposed development would result in the permanent loss of between 2.08 ha (5.13 ac) and 2.85 ha (7.05 ac) of annual grasslands in the project area, with temporary impacts of between 7.26 ha (17.94 ac) and 8.26 ha (20.42 ac). Non-native annual grassland is common and abundant locally, regionally and statewide. Furthermore, it is of little botanical value. Non-native annual grassland in the project area exists primarily along the roadside and within fallow agricultural fields and retains few native species and supports several noxious weed species.

Noxious weed species are common in the project area. Movement of construction vehicles that disrupt and remove existing plants and seed banks in the soil have the potential to spread noxious weeds into the creek and riparian corridors and would be in conflict with Executive Order 13112: Prevention and Control of Invasive Species. Annual grasslands are quite common, and no mitigation is required for impacts to this habitat.

### 3.15.11 Wetlands and Other Waters

### 3.15.12 Regulatory Setting

Wetlands and other waters of the United States are protected under a number of laws and regulations. At the federal level, the Clean Water Act is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (USACE 1987). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (ASCE) with oversight by the U.S. Environmental Protection Agency (EPA).

The Executive Order for the Protection of Wetlands also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the State level, wetlands and waters are regulated primarily by the Department of Fish and Game (CDFG) and the Regional Water Quality Control Boards (RWQCB). The RWQCB was established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will divert or obstruct the natural flow of or change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the ACOE

may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

### 3.15.13 Affected Environment

Waters and wetlands types present within the study area are classified as follows:

- Riverine, Intermittent Stream,
- Riverine, Lower Perennial,
- Palustrine, Scrub-Shrub Deciduous,
- Palustrine, Emergent Wetland (Persistent), and
- Palustrine, Emergent Wetland (Non-persistent).

### 3.15.14 Survey Results

Other waters of the U.S. within the study area include Palmer Canyon Creek, Chimney Canyon Creek, Brooks Creek, Salt Creek, Willow Creek, Lamb Valley Slough, and South Fork Willow Slough. The majority of these intermittent streams feed into Cache Creek. These creeks convey runoff from the hills surrounding the Capay Valley during the wet season (including agricultural runoff); while, agricultural sloughs convey water throughout the year. Mapping of waters, other waters and wetlands of the U.S. is provided in Appendix J.

Cache Creek lies north of and runs nearly parallel to SR 16 in the project vicinity, and its proximity to the study area varies from 0.3 km (0.18 miles) to 3.5 km (2.2 miles). Capay Diversion Dam, located 0.56 miles north of the study area just west of the town of Capay, diverts water from Cache Creek into a network of 281.6 km (175 mi) of canals that deliver water to the Yolo County Flood Control & Water Conservation District. One of the two main canals in this water delivery system, Winters Canal, crosses the study area near the town of Capay before traveling south toward Putah Creek. At its closest point to the study area, Putah Creek is 17.9 km (11.1 miles) south. Both Cache Creek and Putah Creek feed into the Sacramento River.

Various agricultural and roadside ditches are also scattered throughout the study area, the majority of which are non-jurisdictional features. Many of the ditches are conveyance facilities purely for water originating from agricultural sources and should the pumps be rendered inactive, the ditches would revert to their natural upland state and not carry natural runoff. The several jurisdictional ditches that traverse the study area lead directly to larger jurisdictional waters or have been channeled. “Waters”, “other waters”, and “wetlands” that will be permanently and temporarily impacted as a result of project construction are classified according to Cowardin et.al. (1979).

**Riverine, Intermittent Stream**

Taylor, Saltroy, Salt, and Willow creeks and other un-named tributary waters occur within the study area. Approximately 0.94 ha (2.32 ac) of the study area is comprised of intermittent creek habitat. Although sparse within the banks of each intermittent streams, dominant vegetation includes curly dock, Bermuda grass, and reed canary grass.

**Riverine, Lower Perennial**

Lambs Valley and South Fork Willow sloughs either cross or are adjacent to agricultural fields within the study area. These sloughs were typically scoured and contained little, if any, identifiable vegetation. Although agricultural sloughs were not dominated by a particular species assemblage per se, individuals of several species, including curly dock and yellow star thistle, were observed in some areas. Agricultural ditch features comprise approximately 0.41 ha (1.01 ac) of the study area.

**Palustrine, Scrub-shrub Deciduous**

Riparian wetlands include those portions of the valley foothill riparian habitat that exhibited all three criteria (i.e., vegetation, soils, and hydrology) required for classification as jurisdictional wetlands. Riparian wetland areas within the study area comprise 0.03 ha (0.07 ac).

**Palustrine, Emergent Wetland (Persistent)**

Emergent wetland habitat type is characterized by erect or floating, rooted, herbaceous hydrophytes and occurs only within the banks of intermittent creeks running through the study area, 0.04 ha (0.09 ac). Pockets of fresh emergent wetland habitat occur in areas where the intermediate creek channel gradient is low enough to allow flowing water to pond and allow herbaceous hydrophytic species to take root. Dominant species within this habitat type include broad-leafed cattail, sandbar willow (Salix exigua), tall flatsedge (Cyperus eragrostis), iris leafed rush (Juncus xiphioides), and reed canary grass (Phalaris arundinacea).

Wet meadow habitat is typically formed in disturbed depressions that are relatively flat and have poor drainage. The wet meadow habitat within the study area comprises roughly 0.01 hectare (0.03 ac). The hydrophytic vegetation observed in this habitat type includes the following species: broad-leaf cattail (Typha latifolia), creeping spikerush (Eleocharis macrostachya), tall flatsedge (Cyperus eragrostis), and slough sedge (Carex obnupta). The wet meadow feature occurs in cropland habitat and appears to be fed by an agricultural ditch located to the south.

**Palustrine, Emergent Wetland (Non-persistent)**

Wet swale habitat along the SR 16 corridor totaled 6.72 ha (16.60 ac). This habitat type is found in cropland and pastures within the study area. Hydrophytic species observed in this habitat type include perennial ryegrass (Lolium perenne), popcorn flower (Plagiobothrys stipitatus), blowwives (Achyrachaena mollis), common spikeweed (Hemizonia pungens), and Mediterranean barley (Hordeum murinum).

Approximately 0.004 ha (0.01 ac) of the study area consists of intermittent pool habitat, which is located within cropland habitat. The edges of the feature are dominated by hydrophytic species including nutsedge, curly dock (Rumex crispus), and clustered field sedge (Carex praegracillis). The pool appears to be fed by an agricultural ditch located to the south.

### 3.15.15 Project Impacts

Construction of the project will result in the permanent loss of between 0.40 ha (1.0 ac) and 0.47 ha (1.16 ac) of other waters, with temporary impacts between 0.34 ha (0.84 ac) and 0.63 ha (1.56 ac) of other waters.

Project construction will result in the permanent loss of between 0.43 ha (1.06 ac) and 0.76 ha (1.88 ac) of riparian wetlands, with temporary impacts between 1.0 ha (2.48 ac) and 2.6 ha (6.42 ac).

Project construction will not impact palustrine, emergent persistent and non-persistent wetlands.

### 3.15.16 Avoidance, Minimization and/or Mitigation Measures

Erosion control work will consist of application of erosion control materials within non-riparian upland areas adjacent to embankment slopes, excavation slopes, and other designated areas. All materials used for erosion control work will conform to Section 20-2 of the Caltrans Standard Specifications and the specifications discussed below.

- Activities that increase the erosion potential within the study area will be restricted to the fullest extent possible to the relatively dry summer and early fall period to minimize the potential for rainfall events to mobilize and transport sediment into any wetland feature or body of water adjacent to and downstream from the study area.
- The removal of vegetation will be minimized whenever possible.
- Weed-free mulch will be applied to areas where vegetation has been removed to reduce short-term erosion as soon as feasible after construction. Soils will not be left exposed during the rainy season.
- Filter fences and catch basins will be placed below all construction activities at the edge of all streams, creeks, and drainage ditches in the study area in order to intercept any sediment. These structures will be installed prior to any clearing or grading activities.
- Spoil sites will be located such that they do not drain directly into streams, creeks, or drainage ditches that can potentially lead to wetland features downstream from the construction areas, if possible. If a spoil site drains into ditch leading to a wetland feature downstream from

the construction area, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be graded to reduce the potential for erosion.

- Sediment control measures will be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition throughout the year.
- Any additional construction best management practices (BMPs) designed to minimize erosion and sedimentation will be implemented prior to the onset of construction.
- As part of compliance with the CWA Section 404 permit, Caltrans will be required to compensate for filling waters of the United States (direct impacts) and to ensure no net loss of habitat functions and values.
- Compensation for impacts to other waters and wetlands, will be provided at a minimum ratio of 2:1 (two acres of mitigation for every one acre of other waters and wetlands filled), or as required by the CVRWQCB or ACOE, and may be a combination of mitigation credits, offsite restoration, creation and/or preservation, and onsite.
- Actual compensation ratios will be based on site-specific information and determined through coordination with state and federal agencies as part of the permitting process for the proposed action.
- One or a combination of the following options will be implemented to compensate for potential impacts associated with filling waters of the United States and non-jurisdictional wetlands:
- Contribute funds equal to the amount needed to purchase mitigation bank credits to the preservation of waters of the U.S. and wetlands identified in the working 2001 draft of the Yolo County Habitat Conservation Plan and Natural Communities Conservation Plan (EIP 2001) (HCP/NCCP). The HCP/NCCP directs that conservation lands will be held in fee ownership or as conservation easements and will have resource management plans and funding sources for management in perpetuity. To implement this option, Caltrans may coordinate with appropriate individuals to determine whether there is a potential to purchase and preserve wetlands in the Cache Creek watershed.
- Develop and ensure implementation of a wetland restoration plan that involves creating or enhancing waters and wetlands of the U.S. in the project vicinity. Potential restoration sites will be evaluated by Caltrans to determine feasibility. If the Caltrans determines that on or offsite restoration is possible, a qualified restoration ecologist will be retained to prepare a restoration plan that describes where and when restoration will occur and who will be responsible for developing, implementing and monitoring the restoration plan.

### 3.15.17 Cumulative Impacts

Requisite compensatory guidelines will be applied to achieve “no net loss” of wetlands.

# 3.16 SPECIAL STATUS SPECIES

## 3.16.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): United States Code (USC), Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this Act, Federal agencies, such as the FHWA, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the State level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The CDFG is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. "CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

# 3.17 SPECIAL STATUS PLANT SPECIES

One special-status plant species, Northern California black walnut (Juglans hindsii) was observed in annual grassland and valley foothill riparian habitat within the project study area. No other special-status plant species were observed within the project study area.

## 3.17.1 Black Walnut

Northern California black walnut (Juglans hindsii), a federal species of concern and CNPS List IB species, is a deciduous tree that blooms from April to May. Its habitat preferences include

riparian forest and riparian woodlands at 0 to 440 m (0 to 1444 ft) elevation. The species is known to occur in Contra Costa, Napa, Sacramento, Solano, and Yolo Counties.

### Survey Results

A total of 704 black walnut trees with DBH greater than four inches occur within the project study area. The majority of these trees may have been planted along SR 16 during a period when native black walnut was commonly planted along California State Highways. The California Natural Diversity Database (CNDDB) provided no occurrences for this species within the study area.

## 3.17.2 Impacts

Depending upon which options are chosen for each segment of the project, construction will result in the loss of between 292 and 302 Northern California black walnut trees. These impacts include removal, thinning, or root damage during ground disturbing activities.

Table 8 Black Walnut Trees Impacts

| **Segment** | **1** | | | **2** | **3** | | **4** | **5** | **6** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Option** | **1** | **2** | **3** | **1** | **1** | **2** | **1** | **1** | **1** | **2** |
| Permanent Impact Area | 13 trees | 13 trees | 19 trees | 9 trees | 11 trees | 11 trees | 48 trees | - | - | - |
| Temporary Impact Area | 171 trees | 171 trees | 163 trees | 11 trees | 7 trees | 15 trees | 20 trees | 1 tree | 3 trees | 3 trees |

## 3.17.3 Avoidance, Minimization and/or Mitigation Measures

The mitigation measures developed for impacts to riparian habitat include measures to address impacts to Black Walnut trees.

# 3.18 SPECIAL STATUS ANIMAL SPECIES

Several special status animal species were identified as having the potential to occur within the project area. The results of surveys for these species, a discussion of measures of avoidance and minimization of impacts to each species, and the discussion of any cumulative effects caused by the project to these species is provided here.

### 3.18.1 Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (Desmocerus californicus dimorphus) (or VELB) is federally listed as a threatened species. Valley elderberry longhorn beetle (VELB) is found in remnants of riparian and elderberry savanna habitats in the Central Valley and foothill locations. The VELB larvae feed solely on elderberry plants (Sambucus spp.). The larvae are wood borers and feed internally in the roots and main stems of elderberry. Adults feed on the flowers and foliage of elderberry. Adult beetles are active when the elderberry is in flower, usually between about mid-March through mid-June. Adult beetles have generally been observed in areas where there is other associated riparian vegetation, especially larger trees. The beetle's habitat consists of riparian forests whose dominant plant species include cottonwood, sycamore, valley oak, and willow, with an understory of elderberry shrubs. CNDDB records indicate the occurrence of valley elderberry longhorn beetle within the Esparto quadrangle.

#### Survey Results

Suitable habitat for VELB occurs within the study area. Approximately 101 elderberry shrubs were identified within the study area at 83 locations. All elderberry shrubs observed within or adjacent to the study area have stems of sufficient size to provide suitable habitat for VELB. Exit bore holes were observed on 29 shrubs during surveys conducted on February 5-7, March 4-6, and April 11-12, 2002. The VELB was observed on a shrub located in cropland/pasture habitat in the study area.

### 3.18.2 Impacts

Construction of this project would result in the direct impact of thirty-two elderberry shrubs which are considered suitable habitat for the federally-threatened valley elderberry longhorn beetle.

VELB individuals and suitable habitat could also be adversely impacted by dust generated during construction activities if an adequate buffer between the shrubs and construction zone is not maintained. A more detailed discussion of potential impacts to this species can be found in the focused Biological Assessment that has been prepared for submittal to the USFWS.

### 3.18.3 Avoidance, Minimization and/or Mitigation Measures

Caltrans will ensure that all elderberry shrubs with one or more stems measuring one-inch or more in diameter that cannot be avoided during construction will be transplanted to a conservation area in accordance with Conservation Guidelines for Valley Elderberry Longhorn Beetle (USFWS 1999). If an elderberry shrub is unlikely to survive transplantation because of poor condition or location, the shrub may be exempted from transplantation at the discretion of USFWS.

Before any ground-disturbing activity, Caltrans will ensure that a minimum 4-foot-tall temporary, plastic mesh construction fence (Tensor Polygrid or equivalent) is installed at least 20 feet from the driplines of elderberry shrubs that are not to be removed. The fencing is intended to prevent encroachment by construction vehicles and personnel. The exact location of the fencing will be determined by a qualified biologist, with the goal of protecting the valley elderberry longhorn beetle habitat. The fencing will be strung tightly on posts set at a maximum interval of ten feet. The fencing will be installed in a way that prevents equipment from enlarging the work area beyond what is necessary to complete the work. The fencing will be checked and maintained weekly until all construction is completed.

A sign will mark this buffer zone and state the following 'This is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines and imprisonment'. The fencing and a note reflecting this condition will be shown on the construction plans. Signs will be legible from a distance of 6.1 m (20 ft) and must be maintained for the duration of construction.

Caltrans will compensate for direct and indirect effects to all elderberry shrubs measuring one-inch or more at ground level (suitable VELB habitat) in accordance with USFWS's Conservation Guidelines for Valley Elderberry Longhorn Beetle. Compensation will include replacement plantings of elderberry seedlings or cuttings and associated native plantings at an on or offsite USFWS-approved conservation area, at a ratio between 1:1 and 8:1 (ratio = new plantings to affected stems), depending on the diameter of the stem at ground level, the presence or absence of exit holes and whether the shrub is located in riparian habitat.

### 3.18.4 Cumulative Impacts

Construction activities associated with the following related- past, present and future transportation projects and other development projects will result in the loss of suitable VELB habitat. In accordance with federal law, these projects have provided some form of compensatory mitigation for VELB:

- The State Route 16 Superelevation and Guardrail Project,
- The South Fork Willow Slough Bridge replacement on County Road 89,
- The Cache Creek Bridge replacement on County Road 99W,
- The Capay Hills Golf Club of the Cache Creek Casino expansion.

The application of measures of avoidance and the minimization and compensatory mitigation will serve to minimize cumulative effects for this species

### 3.18.5 Giant Garter Snake

The Giant Garter Snake (Thamnophis giga) is federally and state listed as threatened. Giant garter snakes feed primarily on small fishes, tadpoles, and frogs. Habitat requirements consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter. The giant garter snake inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley.

Giant garter snakes are typically absent from larger rivers because of lack of suitable habitat and emergent vegetative cover, and from wetlands with sand, gravel, or rock substrates. Riparian woodlands typically do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations. However, some riparian woodlands do provide good habitat.

The giant garter snake inhabits small mammal burrows and other soil crevices above prevailing flood elevations throughout its winter dormancy period. Giant garter snakes typically select burrows with sunny exposure along south and west facing slopes. The breeding season extends through March and April, and females give birth to live young from late July through early September. Brood size is variable, ranging from 10 to 46 young, with a mean of 23. Young immediately scatter into dense cover and absorb their yolk sacs, after which they begin feeding on their own. Although growth rates are variable, young typically more than double in size within the first year. Sexual maturity averages three years for males and five years for females.

Historically, the range of this snake was the San Joaquin Valley from the vicinity of Sacramento and Antioch southward to Buena Vista and the Tulare Lake Basin. The current distribution extends from near Chico, Butte County, to the vicinity of Burrel, Fresno County.

Suitable habitat includes the agricultural/roadside ditches and slough located within the study area, as well as the adjacent upland habitat, which would be suitable for use as cover and refuge from flood waters during the snake's dormant season.

### Survey Results

Yolo is among the 11 counties where the giant garter snake is still presumed to occur. Within the Yolo Basin, Willow Slough provides suitable habitat for GGS. The CNDDB database search provided no records for the occurrence of giant garter snake in the Brooks, Esparto, or Madison quadrangles. No giant garter snakes were observed in the study area during field surveys.

Although no giant garter snakes were observed during surveys conducted in 2002, there is potential for giant garter snake to occur within South Fork Willow Slough.

## 3.18.6 Impacts

Project construction activities will permanently impact 0.36 ha (0.88 ac) potential giant garter snake habitat. Construction will temporarily impact 0.77 ha (1.89 ac) potential giant garter snake habitat. Potential impacts to GGS are present during paving of roadways, culvert and/or rock slope placement, vehicles or equipment operation near creeks, streams, ditches, sloughs, or adjacent upland habitat suitable for cover and refuge, if personnel venture into these features, and/or during bridge rehabilitation/replacement activities.

## 3.18.7 Avoidance, Minimization and/or Mitigation Measures

The Yolo Basin/Willow Slough contains one of the known populations of giant garter snake (USFWS 1999). Conservation measures to reduce potential impacts to this species will entail certain avoidance periods as well as other measures, developed through consultation with the USFWS, to minimize potential impacts to this species.

Construction activity within suitable habitat should be conducted between May 1 and October 1 to minimize impacts to this species. This is the active period for giant garter snakes and thus direct mortality is lessened because snakes are expected to actively move and avoid danger. Clearing will be confined to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as an Environmentally Sensitive Area.

Construction personnel should receive USFWS-approved worker environmental awareness training. This training instructs workers to recognize giant garter snakes and their habitat(s). Twenty-four hours prior to construction activities, the project area should be surveyed for giant garter snakes. Surveys of the project area should be repeated if a two-week or greater lapse in construction activity occurs. If a giant garter snake is encountered during construction, activities will cease until appropriate corrective measures have been completed or it has been determined

that the giant garter snake will not be harmed. Any sightings and any incidental take will be reported to the USFWS immediately by telephone at (916) 414-6600.

Any dewatered habitat should remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

After completion of construction activities, any temporary fill and construction debris will be removed and, wherever feasible, disturbed areas restored to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel.

### 3.18.8 Cumulative Impacts

Because of small area affected, cumulative impacts are not likely to be significant.

### 3.18.9 Swainson's Hawk

The Swainson's hawk (Buteo swainsoni) is a federal species of concern and is listed by CDFG as threatened in California. Swainson's hawks typically nest in tall, densely foliated trees located adjacent to suitable foraging habitat. Trees most commonly used in the Central Valley include valley oak, Fremont cottonwood, walnut, and large willows. Nest trees are most commonly located in riparian woodlands adjacent to open grassland or agricultural lands. Nests may also be located in roadside trees and in isolated trees or clumps of trees in open terrain. The location of the nest site adjacent to suitable foraging habitat appears to be one of the most important criteria for occupancy of the nest territory . Swainson's hawks exhibit a high rate of nest territory re-occupancy. However, use of alternative nests within the territory is common. Swainson's hawk may use an alternate nest in a different tree or, less often, may construct a new nest in the same tree.

Swainson's hawks historically foraged over open native grasslands and sparse shrub lands. However, much of this original foraging habitat has been converted to either urban development or cultivated agricultural crops. Foraging habitat for the species is now composed primarily of remnant grasslands, lightly grazed pasture, alfalfa and other hay crops, and certain grain and row crops. The selection of foraging habitat by the Swainson's hawk is considered to be a function of prey density as well as prey availability. Alfalfa is considered to be one of the more favorable cultivated foraging habitats, largely due to the sequence of monthly mowing and weekly flood irrigation that makes it a crop type of high prey availability for the duration of the breeding season. Newly disked fields, fallow fields, dry-land pasture, beets, tomatoes, and irrigated pasture have also been identified as preferred cover types. Rangelands, riparian systems,

vineyards, orchards, oak woodlands, cotton, asparagus, onion fields, and developed areas are seldom used for foraging.

Swainson's hawks breed from southern Canada, through the western United States, and into northern Mexico. In California, Swainson's hawk were once found throughout lowland California and were absent from only the Sierra Nevada, north coast ranges, Klamath Mountains, and portions of the desert region of the state. Nesting pairs of Swainson's hawks have been greatly reduced throughout much of this historic range. Currently, nesting territories are restricted to portions of the Central Valley and Great Basin regions of the state. Swainson's hawks arrive in California between early and mid-March to begin breeding activities. The species generally migrates south through the interior of California in late August and September.

### Survey Results

Annual grassland habitat, oak woodlands, and agricultural fields (cropland) within and immediately adjacent to the project area provide suitable foraging and nesting habitat for Swainson's hawk.

Although the species was not observed within the project area, multiple known nesting occurrences are located within five miles of the project site, the nearest of which is located less than 0.32 km (0.2 mi) north of the project area near South Fork Willow Slough.
Based on available foraging and nesting habitat, there is potential for this species to establish new nesting territory within or directly adjacent to the project area prior to the initiation of construction activities.

## 3.18.10 Impacts

Construction activities (e.g., tree and shrub removal, excavation, grading) within or adjacent to oak woodland or riparian woodland habitats in the project area, could result in the removal or disturbance (e.g., trimming) of trees and shrubs that provide potential foraging habitat for Swainson's hawks.

Depending upon which options are chosen for each segment of the project, permanent impacts to potential Swainson's hawk foraging habitat are between 20.28 ha (50.12 ac) and 21.53 ha (53.20 ac), and temporary impacts of between 66.71 ha (164.84 ac) and 87.06 ha (215.13 ac).

Since construction occurs during the breeding season (generally between March 1 and August 15), activities such as tree and shrub removal, excavation and grading that occur within the project area may disturb or remove occupied Swainson's hawk nests, and, potentially, lead to

nest abandonment and subsequent loss of eggs or developing young at active nests located in or near the study area.

Swainson's hawk is designated as a state-threatened species and is afforded full protection under the California Endangered Species Act (CESA). Any disruption to a nesting Swainson's hawk would be considered a "take" under CESA. This would require consultation with the CDFG.

### 3.18.11 Avoidance, Minimization and/or Mitigation Measures

Due to the documented occurrences of Swainson's hawks in the project area, the following avoidance and minimization measures will be incorporated into the contract specifications:

To avoid impacts to nesting Swainson's hawks and other nesting raptors during the breeding season (March 1-September 15), a qualified biologist will conduct a pre-construction raptor survey, using DFG-approved protocols, of all potentially active nest sites within 0.5 mile of the project corridor. For construction beginning after April 30 and before September 15, one survey will be conducted of all potential nest trees located within 0.5 mile of the project corridor. If no active nests are found within 0.5 mile of the project corridor, construction can proceed without any further mitigation.

No intensive new disturbances (e.g., heavy equipment operation associated with construction) or other project-related activities that may cause nest abandonment or forced fledging, will be initiated with in 0.5 mile (buffer zone) of an active nest between March 1 and September 15. Nest trees will not be removed unless there is no feasible way of avoiding it. If a nest tree must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from CDFG prior to removal through Section 2081 consultation with CDFG. The tree removal period specified in the Management Authorization is generally between October 1 and February 1. If construction or other project-related activities that may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site by a qualified biologist, to determine if the nest is abandoned, will be required. If it is abandoned and if the nestlings are still alive, the Caltrans will fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).

Caltrans will compensate for the loss of Swainson's hawk foraging habitat by providing Habitat Management lands (HM lands) to CDFG as defined in the Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California (published by California Department of Fish and Game in 1994). If an active nest is found within 1 mile of an active nest (as determined by pre-construction surveys) the loss of habitat will be compensated at a ratio of

1:1 (HM lands: roadway development). Caltrans will provide HM lands through an in-lieu fee process prior to groundbreaking.

Credits will be purchased through the in-lieu fee program due to the lack of mitigation credits currently available at a bank. The cost per acre for the in-lieu fee is $4,900 payable to the Joint Power Authority. Caltrans will issue a check to the Joint Power Authority. It is estimated that a total of 53.2 acres of Swainson's hawk foraging habitat would be removed as a result of the project.

### 3.18.12 Cumulative Effects

In addition to this project, several other past and planned projects have or will result in the loss of suitable foraging habitat for Swainson's hawk. In Yolo County, CDFG has recognized the loss of suitable Swainson's hawk foraging habitat as caused by urban expansion poses a risk to the threatened species and has worked with Yolo County to mitigate for these impacts. Cumulative impacts to Swainson's hawk primarily include loss of suitable foraging habitat within and near nesting territories. Urban development within the area considered for cumulative impacts includes Parker Place, Country West, and Esperanza Estates of Esparto.

### 3.18.13 Bank Swallow

The bank swallow (Riparia riparia) is a federal species of concern and state threatened. Bank swallows are neotropical migrants found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. In summer, the species is restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. The species will also roost on logs, shoreline vegetation, and telephone wires. Bank swallows are predominantly colonial breeders with colonies that range in size from 10 to 1,500 nesting pairs, although most colonies have 100-200 nesting pairs. Nests are found almost always near water. Bank swallows feed predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland. In migration, the species flocks with other swallows over many open habitats.

The bank swallow is a spring and fall migrant in the interior, less common on coast, and an uncommon and very local summer resident. Casual in southern California in winter; a few winter records along central coast to San Mateo County. Range in California estimated to be reduced 50% since 1900. Formerly more common as a breeder in California but only about 110-120 colonies remain within the state. Perhaps 75% of the current breeding population in California occurs along banks of the Sacramento and Feather rivers in the northern Central Valley. Other colonies persist along the central coast from Monterey to San Mateo counties, and northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc counties.

### Survey Results

The banks adjacent to creeks and streams in the project area (i.e., Chimney Canyon Creek, Cache Creek) provide suitable foraging and nesting habitat for bank swallows. This species was not observed in the study area during field surveys conducted by NSR biologists. Neither were any abandoned nest burrows observed within or adjacent to the study area during site visits. CNDDB provide one record for bank swallow within the Brooks/Esparto quadrangles, and three records within the Madison quadrangle. The nearest of these known occurrences is located approximately one mile northeast of the project area, on the banks of Cache Creek near Rumsey Rancheria.

Banks within and adjacent to the study area adjacent to Chimney Canyon Creek and other intermittent creeks and perennial streams provide suitable habitat for this species. There is potential for bank swallows to establish a nesting colony within and adjacent to the project area prior to the onset of project construction activities.

### 3.18.14 Project Impacts

With implementation of the above stated avoidance and minimization measures, the project is not expected to impact the bank swallow.

### 3.18.15 Avoidance, Minimization and/or Mitigation Measures

Prior to construction or ground-disturbing activities, Caltrans will require a bank swallow survey of sufficient scope and duration to determine if the species is nesting within the study area or buffer zones established by CDFG (breeding season is April through July). Although no prior bank swallow nesting colony has been recorded in the study area, if a new nesting colony of bank swallow is detected during the surveys, and active nest sites are found in or adjacent the construction area, then CDFG will be contacted to obtain minimum on-the-ground project-site-specific distances for buffer zones within which construction activity may proceed during the nesting season.

## 3.19 NON-LISTED SPECIES OF CONCERN

### 3.19.1 Regulatory Setting

Many State and Federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries) and the CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the State or Federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are

discussed in a subsequent section. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

### 3.19.2 Affected Environment

Based on available habitat, the study area was evaluated for the potential occurrence of several special-status species. Six special-status animal species were identified in the California Natural Diversity Database (CNDDB) query results for the Brooks, Madison, and Esparto USGS 7.5-minute quadrangles; none of these known occurrences are located within the project study area boundaries.

### 3.19.3 Aquatic Species

Pacific lamprey

The Pacific lamprey (Lamptera tridentate) is a federal species of concern. The species has been found from Point Canoas, Baja California, to the Bering Sea and Japan. Along the California coast, they are more abundant from Monterey northward. Pacific lamprey have been observed in Cache Slough, Lindsey Slough, Suisun Bay, American River (up to Nimbus Dam), the Sacramento River (up to Red Bluff Dam), Napa River, Sonoma Creek, and Walnut Creek. Pacific lamprey historically spawned in Cache Creek (Moyle and Ayers undated).

Lampreys spawn in freshwater rivers and streams. Juvenile lamprey (or ammocoetes) occur in slow-moving current, silty bottom habitats; metamorphosed juveniles migrate through estuaries to the ocean. Adult Pacific lamprey migrate upstream during the spring and summer to spawn. Female lamprey deposit eggs in the excavated pits for fertilization by a male. Pits are excavated in gravel and small cobble substrates, typically in run and riffle habitats. Adults die following spawning. Following incubation larval lamprey distribute along slow water and backwater areas, often burrowing into the silty sand or mud bottoms. Ammocoetes spend from 4 to 7 years in freshwater. When mature, they begin their migration to the sea. Adult lamprey will remain in the ocean from 6 to 18 months before they begin migrating upstream to spawn.

River lamprey

The river lamprey (Lamptera ayresi) is a federal species of concern and California species of special concern. River lampreys have been collected from large coastal streams from 15 miles north of Juneau, Alaska, down to San Francisco Bay. Throughout their range, they apparently exist only as widely scattered, isolated populations. River lampreys are abundant in British Columbia, the center of their range, but there are relatively few records from California, the southern end of their range. In California, they have been recorded from the lower Sacramento

and San Joaquin rivers and from the Russian River. Two tributary streams where spawning has been recorded in the past (Sonoma and Cache Creeks) are both severely altered by channelization, urbanization, and other problems. Trends in the populations of river lamprey are unknown in California, but it is likely that they have declined, along with the degradation of suitable spawning and rearing habitat in rivers and tributaries.

Potential habitat for Pacific lamprey and river lamprey exists within South Fork Willow Slough within the project area. Pacific lamprey were not observed in the study area during surveys conducted by NSR biologists. The California Natural Diversity Database (CNDDB) provided no records for Pacific lamprey in the Brooks, Esparto, or Madison quadrangles.

Sacramento splittail

The Sacramento splittail (Pogonichthys macrolepidotus) is a federal species of concern and a California species of special concern. The splittail is a California Central Valley endemic that was once distributed in lakes and rivers throughout the Central Valley. The Sacramento splittail has disappeared from much of its native range because dams, diversions, and agricultural development have eliminated or drastically altered much of the lowland habitat these fish once occupied. Access to spawning areas or upstream habitats is now blocked by dams on the large rivers because splittail seem incapable of negotiating existing fishways. As a result they are restricted to water below Red Bluff Diversion Dam on the Sacramento River, below Nimbus Dam on the American River and below Oroville Dam on the Feather River. There have been rare observances of splittail more than 10-20 km above the upstream boundaries of the Delta.

The perennial stream located within the project area (i.e., South Fork Willow Slough) provides potential habitat for Sacramento splittail. The species could potentially occur within the intermittent streams within the study area during years with higher than average rainfall. The species was not observed in the project vicinity during surveys conducted by NSR biologists. The CNDDB database query provided no records for Sacramento splittail in the Brooks, Esparto, or Madison quadrangles. Perennial and intermittent streams within the vicinity of the project eventually flow into Cache Creek, which is known to contain Sacramento splittail.

Potential impacts to species occurring in aquatic areas could include excess sediment transport during construction in or around the South Fork Willow Slough (i.e., bridge rehabilitation/replacement and/or earthwork activities) and loss of stream shading due vegetation removal activities within the permanent impact zone. Direct impacts could include loss of suitable habitat due to earthwork, culvert installation, placement of rock slope protection, bridge replacement and/or widening, or box culvert construction. However, with the implementation of

the previously mentioned avoidance and minimization measures, it is unlikely the project will impact Sacramento splittail.

### 3.19.4 Project Impacts

With implementation of the avoidance and minimization measures, the project is not expected to impact the Pacific lamprey, river lamprey or the Sacramento splittail.

### 3.19.5 Avoidance, Minimization and/or Mitigation Measures

A qualified biologist will monitor grading activities occurring within 100 feet of the aquatic and riparian habitats; and

- Prior to project construction, temporary fencing will be placed to protect environmental sensitive areas. Operators of heavy equipment will be informed to avoid environmentally sensitive areas (including important aquatic sites) outside of the construction area; and
- Temporary sediment settling basins and structures such as sediment fencing, straw bales, or other appropriate erosion control measures will be used to delineate project area boundaries and prevent sediment-laden runoff from entering the drainage channels and riparian corridors; and
- Construction activities occurring adjacent to the aquatic and riparian habitats will occur during summer months when the drainage corridors are the driest and rain is unlikely; and
- Prior to project construction, a qualified biologist will inform grading equipment operators of the potential presence of aquatic and associated species, its protected status, work boundaries, and measures to be implemented to avoid the incidental take of sensitive species; and
- All staging areas and all fueling and maintenance of vehicles and other equipment will occur at least 20 m (60 ft) from any riparian habitat, pond, stream, creek or other water body to preclude habitat contamination from such activities.

### 3.19.6 Amphibians and Reptiles

Western spadefoot

The western spadefoot (Scaphiopus hammondii) is a federal species of concern and California species of special concern. The western spadefoot ranges throughout the Central Valley region of California (Shasta County south to Baja California), as well as bordering foothills. The western spadefoot occurs in valley and foothill grassland, open chaparral and pine-oak woodland in areas that are subject to seasonal flooding. The species typically spends eight to nine months of the year estivating underground, emerging during the late winter and early spring to breed in seasonal pools. The species is also known to breed in stock ponds that lack predatory fish and bullfrogs.

Agricultural/roadside ditches, seasonally wet features (i.e. intermittent pools and wet meadows) and adjacent annual grassland habitat within the study area provide potential habitat for western spadefoot. However, this species was not observed in the study area during field surveys conducted by NSR biologists. The CNDDB database search provided no occurrences for western spadefoot in the Brooks, Esparto, or Madison quadrangles.

Foothill yellow-legged frog

The foothill yellow-legged frog (Rana boylii) is a federal species of concern and California species of special concern. The foothill yellow-legged frog occurs in the Coast Ranges from the Oregon border south to the Transverse Mountains, in most of northern California west of the Cascade crest. The foothill yellow-legged frog occurs in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types. Adults often bask on exposed rock surfaces near streams. When disturbed, they dive into the water and take refuge under submerged rocks or sediments. During periods of inactivity, especially during cold weather, individuals seek cover under rocks in the streams or on shore within a few meters of water. Unlike most other ranid frogs in California, this species is rarely encountered far from permanent water, even on rainy nights. Tadpoles require water for at least three or four months while completing their aquatic development. In California, breeding and egg laying usually await the end of spring flooding and may commence any time from mid-March to May, depending on local water conditions. The breeding season at any locality is usually about two weeks for most populations.

Streams in the project area provide marginal habitat for this species. The occurrence of this species is unlikely because streams in the area of road crossings are ephemeral or intermittent. The CNDDB search provided 3 records for the occurrence of foothill yellow-legged frog in the Brooks quadrangle, the nearest of which is located approximately 3.5 miles southwest of the project area. The species was not observed in the project vicinity during the 2002 surveys conducted by NSR biologists.

Western pond turtle

The western pond turtle (Clemmys marmorata marmorata) is a federal species of concern and California species of special concern. Western pond turtles occur throughout northern California, ranging west of the Sierra Nevada Mountains from the Oregon border south to the San Francisco Bay. Western pond turtles are associated with permanent or nearly permanent water in a wide range of habitat types, normally in ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams. Juveniles require willow water with dense

submergent or short emergent vegetation. Pond turtles feed on aquatic plant material as well as aquatic invertebrates, fish, and frogs. Mating occurs in late April or early May, with females often traveling up to 400 m (1,300 ft) to upland nesting sites (with high clay or silt fraction) where 1 to 13 eggs are laid.

Habitat for western pond turtle is present within and immediately adjacent to the project area. Potential habitat for western pond turtles occurs within intermittent creeks, perennial streams, and sloughs (i.e., Palmer Canyon Creek, Chimney Canyon Creek, Brooks Creek, Salt Creek, Willow Creek, Lamb Valley Slough, and South Fork Willow Slough), as well as within roadside (agricultural) ditches in the project area. Individuals would be visible when flowing and/or standing water is present, but may not be visible during aestivation when water is not present within these features. The CNDDB database search provided no records for western pond turtle in the Brooks, Esparto, or Madison quadrangles.

### 3.19.7 Project Impacts

Construction of the project has the potential to result in a take of western pond turtle, if present during construction. With implementation of the above stated avoidance and minimization measures, the project is not expected to impact the western spadefoot, yellow-legged frog or the western pond turtle.

### 3.19.8 Avoidance, Minimization and/or Mitigation Measures

In order to avoid impacts to amphibians and reptiles, Caltrans will implement the following: Pre-construction surveys for sensitive amphibians and reptiles will be conducted not more than 48 hours prior to the commencement of site disturbance. If amphibians or reptiles are detected in an area where there is potential for a take during construction, they will be relocated to a suitable reach of creek upstream or downstream of the project.

Prior to construction, silt fencing or equivalent will be installed parallel to the creek to prevent the movement of amphibians or reptiles from waters onto the project site. The fencing will be checked and maintained weekly by the construction team to ensure that no gaps develop through which amphibians or reptiles could pass. This fencing will be removed once construction of the project is complete.

Prior to construction, a qualified biologist will conduct a training session that describes Western pond turtle, their habitat requirements, their protections under CEQA and the protections used during construction to prevent take of individuals.

## 3.19.9 Hawks, Kites, Falcons and Owls

### Survey Results

Species of the Accipitridae, Falconidae, and Strigidae avian families are predatory and at some time during their life cycle rely on oak woodland/riparian and grassland habitats as a source of nesting and prey-base. Species considered in this section include Northern harrier (Circus cyaneus), sharp-shinned hawk (Accipiter striatus), white-tailed kite (Elanus leucurus), Cooper's hawk (Accipiter cooperii), ferruginous hawk (Buteo regalis), prairie falcon (Falco mexicanus), burrowing owl (Athene cunicularia) and short-eared owl (Asio flammeus).

Northern harrier

The northern harrier is a California species of special concern. Northern harriers frequent meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Northern harriers nest on the ground, in shrubby vegetation. Nest locations are usually in emergent wetland or along rivers or lakes, but harriers may also nest in grasslands, grain fields, or in sagebrush flats several miles from water. Northern harriers are widespread winter resident and migrant in suitable habitat. Competes with other buteos for food, especially red-tailed hawks (Buteo jamaicensis) and red-shouldered hawks (Buteo lineatus). Northern harriers are often considered a diurnal counterpart of the short-eared owl. Population may increase with some agricultural practices (i.e., grain crops), provided that cover and nesting habitat is preserved or enhanced.

While, the CNDDB database search provided no records for northern harrier in the Brooks, Esparto, or Madison quadrangles, Northern harrier was observed in the study area by Caltrans and NSR biologists. Suitable habitat for Northern harrier must be free of disturbance, especially from intensive agriculture and grazing. The proximity and intensity of human disturbance likely prevents this species from nesting within the project area.

Sharp-shinned hawk

The Sharp-shinned hawk is a California species of special concern. This species formerly bred in small numbers throughout much of northern California and in very small numbers in all the mountain ranges of southern California as far south as the Cuyamaca Mountains, San Diego County. Sharp-shinned hawks breed in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Nests are built among dense pole and small-tree stands of conifers that are cool, moist, well-shaded, have little ground cover, and located near water. Sharp-shinned hawks prefer riparian habitats on north facing slopes with 'plucking perches'. Sharp-shinned hawks use all habitats except alpine, open prairie, and bare desert during winter.

Sharp-shinned hawks forage in openings at edges of woodlands, hedgerows, brushy pastures, and shorelines, especially where migrating birds are found.

No nesting habitat for sharp-shinned hawk occurs within the project area. Suitable foraging habitat for these species is present in oak woodlands, hardwood-conifer and riparian habitats within the project area. Sharp-shinned hawks were not observed in the study area during surveys conducted by Caltrans and NSR biologists. The CNDDB database search provided no records for sharp-shinned hawk in the Brooks, Esparto, or Madison quadrangles.

White-tailed kite

The white-tailed kite is a federal species of concern, and it is a State fully protected species. White-tailed kites can be found in association with the herbaceous and open stages of a variety of habitat types, including open grasslands, meadows, emergent wetlands, and agricultural lands. Their nests are constructed near the top of dense oaks, willows, or other tree stands located adjacent to foraging areas. White-tailed kites are seldom observed more than 0.8 km (0.5 mi) from an active nest during the breeding season. The white-tailed kite is found year-round in both the coastal zones and lowlands of the Central Valley in California.

Annual grasslands, oak woodlands, valley foothill riparian habitat, and agricultural fields (cropland) located within the study area provide suitable foraging and/or nesting habitat for white-tailed kite. The species was not observed in the project vicinity during the 2002 surveys conducted by NSR biologists. The CNDDB database search provided no records for white-tailed kite for the Brooks, Esparto, or Madison quadrangles. Although the species was not observed in the study area, the habitat suitability and thus the likelihood of finding the species in the project area is high.

Cooper's hawk

The Cooper's hawk is a California species of special concern. Cooper's hawks are usually found in dense stands of live oak, riparian deciduous, or other forest habitats near water. Cooper's hawks often frequent landscapes where wooded areas occur in patches and groves. Often uses patchy woodlands and edges with snags for perching and dense stands with moderate crown-depths used for nesting.

Riparian and oak woodland habitat provide suitable nesting habitat for this Cooper's hawk. Suitable foraging habitat occurs throughout the project area. The patchy nature of habitat along the project corridor enhances their suitability. The species was not observed in the project

vicinity during the 2002 surveys conducted by NSR biologists. There are no CNDDB records for Cooper's hawk in the Brooks, Esparto, or Madison quadrangles.

Ferruginous hawk

The ferruginous hawk is a federal species of concern and a California species of special concern. The ferruginous hawk winters in California, typically arriving in September and departing in mid-April. The species is not known to nest in California. Open grasslands and cropland habitats on the valley floors and surrounding foothills are the preferred foraging habitats for the species. The ferruginous hawk occurs as a winter resident primarily within the Central Valley and Great Basin areas of California.

No nesting habitat for ferruginous hawk is present in the project area; however, annual grassland and cropland habitat within and adjacent to the project area provide suitable winter foraging habitat for the species. The species was not observed in the study area during field surveys conducted by NSR biologists. The CNDDB database search provided no records for ferruginous hawk in the Brooks, Esparto, or Madison quadrangles.

Prairie falcon

The prairie falcon is a California species of special concern. Prairie falcons are distributed from annual grasslands to alpine meadows, but they are primarily associated with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Prairie falcons require sheltered cliff ledges for cover and nesting. They may nest on old raven or eagle stick nests on a cliff, bluff, or rock outcrop, or they may forage over open terrain.

Although nesting habitat is not present, areas within the study area may provide suitable foraging habitat within the project area. The prairie falcon was not observed in the project vicinity during field surveys. The CNDDB record search provided one record of occurrence for prairie falcon in the Brooks quadrangle. This occurrence is located five miles west of the project site, just west of the Yolo/Napa County border.

Burrowing owl

The burrowing owl is a federal species of concern and a California species of special concern. Burrowing owls prefer open, dry grassland and deserts. The nesting season is between February 1 and August 31. Nests are typically located in abandoned rodent burrows, particularly California ground squirrel (Spermophilus beecheyi), which they modify each year. Burrowing owls forage in open grassland areas adjacent to nest sites. The species have also been documented in open areas near human habitation, especially airports and golf courses. The

Central Valley and surrounding foothill regions of California provide year-round habitat for burrowing owl.

Burrowing owls are ground-nesters often nesting in annual grassland, agricultural field, and orchard-vineyard habitat that supports small mammal burrows, particularly California ground squirrel burrows. Annual grassland habitat, agricultural fields (cropland), and orchard-vineyard habitat within the project area provide both suitable foraging and nesting habitat for burrowing owl.

The species was not observed in the project vicinity during the 2002 surveys conducted by NSR biologists, and the CNDDB search provided no records for burrowing owls occurring in the Brooks, Esparto or Madison quadrangles. Although the species was not observed within the study area during field visits, potential habitat for the species occurs as ground squirrel burrows in the study area.

Short-eared owl
The short-eared owl is a California species of special concern. Short-eared owls require dense vegetation; tall grasses, brush, ditches, and wetlands are used for resting and roosting cover. Found in open, treeless areas with elevated sites for perches, and dense vegetation for roosting and nesting. Nests on dry ground in a depression concealed by vegetation and occasionally in a burrow. Migrants typically arrive in California in September or October and leave in April. In winter, concentrates in areas where prey is abundant and snow cover is scant or absent. Small numbers once bred locally throughout California where suitable habitat was available. Now the species has completely vanished as a breeding bird from the southern coastal area and perhaps the San Joaquin Valley. A nest near Davis in 1976 was the first nesting record in many years in the Sacramento Valley. Status elsewhere in northeastern California is poorly documented. The species is a widespread winter migrant, found primarily in the Central Valley, western Sierra Nevada foothills, and southern desert region.

No nesting habitat for short-eared owl occurs in the study area. Habitat within the study area may provide suitable foraging habitat for this species. Short-eared owls were not observed in the project vicinity during field surveys conducted by NSR biologists. The CNDDB records indicate no new occurrences of short-eared owls in the Brooks, Esparto, or Madison quadrangles.

### 3.19.10 Project Impacts

Construction activities (e.g., tree and shrub removal, excavation, grading) within or adjacent to oak woodland or riparian woodland habitats in the project area, could result in the removal or

disturbance (e.g., trimming) of trees and shrubs that provide potential nesting habitat for special-status birds and raptors such as state fully protected white-tailed kite, state species of special concern northern harrier and loggerhead shrike, and other non-special-status migratory birds and raptors.

With implementation of the avoidance and minimization measures, the project is not expected to impact the northern harrier, sharp-shinned hawk, white-tailed kite, Cooper's hawk, ferruginous hawk, prairie falcon, burrowing owl, short-eared owl.

### 3.19.11 Avoidance, Minimization and/or Mitigation Measures

To avoid impacts to nesting raptors during the breeding season (March 1-September 15), a qualified biologist will conduct a pre-construction raptor survey, using CDFG approved protocols, of all potentially active nest sites within 0.5 mile of the project corridor. For construction beginning after April 30 and before September 15, one survey will be conducted of all potential nest trees located within 0.5 mile of the project corridor. If no active nests are found within 0.5 mile of the project corridor, construction can proceed without any further mitigation.

Pre-construction surveys for burrowing owl will be conducted no more than 30 days prior to ground disturbing activity. Surveys will be conducted by a qualified biologist and will be consistent with the Burrowing Owl Survey Protocol and Mitigation Guidelines, prepared by The California Burrowing Owl Consortium, April 1993. Surveys will include all suitable habitat within 150 meters of the project corridor that have the potential to be impacted. Pedestrian surveys will be spaced to include 100 percent visibility of the ground surface. Transects will be spaced approximately 30 meters apart. If burrows are detected, they will be mapped. If burrowing owls are detected, appropriate mitigation measures may be required per the aforementioned protocol.

If a newly identified suitable raptor nests must be removed for any reason, then it may only be removed prior to the onset of the nesting season or after the young have fledged from the nest. Nest removal may only be performed in consultation with, and with pre-approval from the CDFG.

### 3.19.12 Cumulative Impacts

The project will not contribute incrementally to other past, present, and reasonably foreseeable future actions which do impact northern harrier, sharp-shinned hawk, white-tailed kite, Cooper's hawk, ferruginous hawk, prairie falcon, burrowing owl, short-eared owl species.

### 3.19.13 Migratory Birds

In their entirety, migratory birds, including their nests and eggs, are protected by the Migratory Bird Treaty (MBTA) Act of 1918. Most native North American birds are contained on the list of birds protected by the act. Specific provisions in the statute include: establishment of a Federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention for the protection of migratory birds or any part, nest, or egg of any such bird." . Accidental take during tree removal would be a violation of the act.

#### Survey Results

Mountain plover

The mountain plover (Charadrius montanus) is a California species of special concern. Mountain plovers occur primarily in the high plains and semi-desert regions of the western United States. Approximately 90% of the North American population winters in California and then migrates to breeding grounds in Colorado, Montana, Wyoming, New Mexico, and other areas. In California, the species winters in the Central Valley from Sutter and Yuba Counties southward, in foothill valleys west of San Joaquin Valley, and in the Imperial Valley. Mountain plovers typically avoid high, dense cover. Mountain plovers prefer short grasslands and plowed fields with little vegetation, as well as open sagebrush areas. Forages on alkaline flats, plowed ground and grazed pasture, and short grass prairie.

Suitable winter foraging habitat in the project area includes grasslands and plowed fields. No nesting habitat for mountain plover occurs within the project area. Mountain plover was not observed in the project vicinity during field surveys conducted by NSR biologists. The CNDDB database search provided no records for mountain plover in the Brooks, Esparto, or Madison quadrangles.

Black tern

The black tern (Chlidonias niger) is a federal species of concern and a California species of special concern. Black terns forage above moist meadows, fresh emergent wetlands, croplands, fields, and water sources (i.e., lakes, ponds), feeding on insects, small fish, and small mollusks. Nests in dense wetland vegetation or sometimes on dry ground in a hollow scrape. Also takes over abandoned muskrat houses and coot and grebe nests. Restricted to freshwater habitat while

breeding, but are common on bays, salt ponds, river mouths, and pelagic waters in spring and fall migration.

The black tern was formerly a common spring and summer visitor, but numbers have declined, especially in the Central Valley. Despite the presence of suitable habitat, breeding is rare in the Central Valley.

CNDDB records indicate no new occurrences for this species in the Brooks, Esparto, or Madison quadrangles. Suitable nesting and foraging habitat are present in the project area, although breeding is questionable in the Central Valley. The species was not observed in the project vicinity during surveys conducted by NSR biologists.

Lewis' woodpecker

The Lewis' woodpecker (Melanerpes lewis) is a federal species of concern. Suitable habitat for Lewis' woodpecker includes open, deciduous and conifer habitats with brushy understory, and scattered snags and live trees for nesting and perching. Lewis' woodpeckers often use open ponderosa pine forests, open riparian woodlands dominated by cottonwood and logged or burned pine. Lewis' woodpecker also uses oak woodlands, orchards, pinyon-juniper woodlands, other open coniferous forests, and agricultural lands. Lewis' woodpeckers excavate their own nest cavity in snags or in the dead part of a live tree, usually nesting in sycamore, cottonwood, oak, or conifer. Important habitat features for Lewis' woodpecker include an open tree canopy, a brushy understory with ground cover, dead trees for nest cavities; dead or downed woody debris, perch sites, and abundant insects.

The Lewis' woodpecker occurs primarily as a winter resident in the Central Valley, Modoc Plateau, and the Transverse and other ranges in California. The species is also found along the eastern slopes of the Coast Ranges south to San Luis Obispo. They breed locally along the eastern slopes of the Coast Ranges, and in the Sierra Nevada, Warner Mts., Klamath Mts., and in the Cascade Range.

Oak woodland, orchard, and valley foothill riparian habitats within the project area provide suitable winter foraging habitat for Lewis' woodpecker. Although the species is primarily a winter visitor in the Central Valley, oak woodlands in the project corridor may provide suitable nesting habitat for this species, and the potential for this species to nest within the study area does exist.

The species was not observed in the project vicinity during surveys conducted by NSR biologists, and the CNDDB database search provided no occurrences of Lewis' woodpecker for the Brooks, Esparto, or Madison quadrangles.

Yellow warbler

The yellow warbler (Dendroica petechia) is a California species of special concern. Yellow warblers are usually found in dense riparian deciduous habitats with cottonwoods, willows, alders, and other small trees and shrubs typical of open-canopy riparian woodlands. Forage patterns usually involve gleaning and hovering for insects and spiders in the upper canopy of deciduous riparian trees and shrubs. Nests are often 2 to 16 feet above the ground in deciduous saplings or shrubs.

Migratory birds of California's oak woodlands share many of the same needs and threats. Large-scale conversion due to urbanization and expanding industrial agriculture continues to rapidly reduce available habitat. Human encroachment subsidizes nest predators such as raccoons, rats, and skunks and introduces exotic species of plants and animals, including domestic cats, European Starlings, and House Sparrows. These invasive bird species often out-compete native cavity-nesting birds resulting in reproductive failure and out-right extirpation of local breeding birds. Finally, the apparent problem of oak regeneration threatens the future generations of all birds reliant on oaks. ). Yellow warblers occur as a summer resident in northern California. Numbers of breeding pairs have declined dramatically in recent decades in the Sacramento River valley. The project area is located within the known range for the species.

Yellow warblers nest and forage in oak woodland and/or valley foothill riparian habitat located within and adjacent to the project area. This species was observed in the project area during Caltrans site visits in October 2000.

Valley foothill riparian habitat within the project area provides suitable nesting and foraging habitat for this species. Yellow warbler was observed in the study area by Caltrans biologists in October 2000. The CNDDB database search provided no records for this species in the Brooks, Esparto, or Madison quadrangles.

Grasshopper sparrow

Grasshopper sparrow (Ammodramas savannarum) is a federal species of concern. Grasshopper sparrows forage on ground and in low foliage within relatively dense grasslands. A thick cover of grasses and forbs is essential for concealment. Grasshopper sparrows build nests in a slight depression on ground, hidden at the base of overhanging clumps of grasses or forbs. This

species often frequents dense, dry or well-drained grassland habitat, particularly fond of native grassland habitat containing a mix of grasses and forbs with scattered shrubs for singing perches.

Annual grassland and pasture habitat (croplands) located in the project area provide suitable foraging and nesting habitat for the grasshopper sparrow. Provided the relative abundance and disturbed nature of annual grassland and cropland foraging habitat, impacts to these are considered negligible for the species. However, disruption or loss of occupied nests would be considered an impact. No grasshopper sparrows were observed in the study area during field surveys. The CNDDB database search provided no records for grasshopper sparrow in the Brooks, Esparto, or Madison quadrangles.

Cliff swallow

Cliff swallows (Hirundo pyrrhonota) are protected under the Migratory Bird Treaty Act of 1918. Cliff swallows occur throughout California, except in high mountains and the dry southeastern desert. Four basic conditions are found at all cliff swallow colonies: (1) an open habitat for foraging; (2) a vertical surface beneath an overhang for attaching the nest; (3) a supply of mud that has the proper consistency for nest building; and (4) a body of fresh water for drinking.

The existing bridge structures within the project ESL contained occupied cliff swallow nests, which are protected by the Migratory Bird Treaty Act. Any proposed construction activities associated with the underside of bridge structures (i.e., deck replacement) during the nesting season (i.e., April-July) could destroy nests with young. Swallow exclusion netting will be placed prior to project construction.

Loggerhead shrike

The loggerhead shrike (Lanius ludovicianus) is a federal species of concern and a California species of special concern. Loggerhead shrikes are known for their habit of impaling prey on thorns, barbed-wire, or other pointed objects, either to eat them immediately or to store them for later use. Foraging is generally conducted from a low perch such as a fence, wire, post, shrub, or low tree limb from which they search for prey. Densely foliated trees and shrubs are used for nesting. The loggerhead shrike occurs year-round in both the coastal zones and lowlands of the Central Valley in California.

Agricultural fields and annual grassland habitat within the project area provide suitable foraging habitat for the loggerhead shrike. Oak woodland and valley foothill riparian habitat, as well as

ornamental trees found in urban and other residential areas present within and directly adjacent to the project area are suitable nesting habitat for the species.

The CNDDB database search provided no records for loggerhead shrike for the Brooks, Esparto, or Madison quadrangles. The species was observed, however, in the project area by Caltrans and NSR biologists.

Tricolored blackbird

Tricolored blackbird (Agelaius tricolor) is a federal species of concern and California species of special concern. Tricolored blackbirds breeds near fresh water, preferably in emergent wetland containing tall, dense cattails or tules; also breeds in thickets of willow, blackberry, wild rose, and tall herbs. Feeds in grassland and cropland habitats, mostly on insects and spiders, seeds, and cultivated grains (i.e., rice and oats). Forages on ground in croplands, grassy fields, flooded lands, and along pond edges.

Nests are located over or near fresh water, typically in emergent wetland habitat or hidden nearby on the ground among low vegetation. Nests are composed of mud and plant materials. This species is highly colonial; nesting areas must be large enough to support a minimum colony of about 50 pairs. Nesting colonies are vulnerable to massive nest destruction by mammalian and avian predators, including Swainson's hawk.

Mostly a resident in California. Common locally throughout the Central Valley and in coastal districts from Sonoma County south. A summer resident in northeastern California, occurring regularly only at Tule Lake, but has bred in some years as far south as Honey Lake. In southern deserts, found regularly only at Antelope Valley, Los Angeles County. Becomes more widespread in winter along the central coast and San Francisco Bay area.

Cropland, orchard-vineyard, valley foothill riparian, and fresh emergent wetland habitat provide suitable foraging habitat for tricolored blackbird. Valley foothill riparian and fresh emergent wetland habitat within and adjacent to the project area are suitable nesting habitat for the species. The nearest known nesting location occurs within the Madison quadrangle (CNDDB 2003). The species was not observed in the study area during surveys conducted by NSR biologists.

Lawrence's goldfinch

Lawrence's goldfinch (Carduelis lawrencei) is a federal species of concern. Valley foothill hardwood, valley foothill hardwood-conifer, open oak woodland, chaparral, and riparian woodland provide suitable habitat for the Lawrence's goldfinch. The species most often nests

near water in open, arid woodland and breeds in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats are often used for feeding. Lawrence's goldfinches build nests in dense foliage of trees or shrubs but prefer to nest in oaks. The species also uses cypress, plantings of deodar cedar, riparian thickets, and other species, and perches on fences and transmission wires.

Lawrence's goldfinches occur along the western edge of southern deserts and are fairly common but erratic from year to year in Santa Clara County and on coastal slopes from Monterey County south. They are uncommon in foothills surrounding Central Valley. Winters erratically in southern coastal lowlands and Colorado River Valley; can be common locally. Small numbers also winter in northern California.

Oak woodland and valley hardwood conifer habitats within the project area provide suitable foraging and nesting habitats for Lawrence's goldfinch. The species was not observed in the project vicinity during surveys conducted by NSR biologists. The CNDDB search provided no records of occurrence of Lawrence's goldfinch in the Brooks, Esparto, or Madison quadrangles.

### 3.19.14 Project Impacts

Tree and shrub removal, excavation and grading within or adjacent to oak woodland or riparian woodland habitats in the project area, could result in the removal or disturbance (e.g., trimming) of trees and shrubs that provide potential nesting habitat for special-status birds.
With implementation of the above stated avoidance and minimization measures, the project is not expected to impact migratory or resident bird species.

### 3.19.15 Avoidance, Minimization and/or Mitigation Measures

Prior to construction, a qualified wildlife biologist will conduct an avian survey within potential nesting and foraging habitat identified in the project area.

Any loss to oak woodland and riparian habitat pose the potential to impact nesting migratory bird species; therefore, all vegetation removal (including clearing and grubbing') must be done between September 1st and February 1st.

Any proposed construction activities associated with the underside of bridge structures (i.e., deck replacement) during the nesting season (i.e., April-July) could destroy cliff swallow nests and young. Therefore, to avoid destruction of potential occupied swallow nests under the bridge, the following mitigation will be implemented to reduce potential impacts to nesting swallows. The contractor will remove all old swallow nests on the bridge structures prior to March 1st of the construction year. The old nests will be removed by washing them down with water and/or

knocking them down with poles and scrapers. Swallows are strongly attracted to old nests or remnants of nests, so all traces of mud should be removed.

After all old nests have been removed, exclusionary netting with opening diameter of 0.75 inches or less (high-density, ultra-violet stabilized polyethylene twine) will be installed on the underside of the existing bridge structures and extend 3 to 4 inches from the sides of the bridge so as to prevent swallows from gaining access to suitable nesting surfaces.

Netting will be left in place until July 31st and monitored daily, especially during the onset of swallow nesting behavior when nest-building activities are the most intense. Any foundational nest material that may develop on either netting attached tightly to the bridge or on unnetted areas of the bridge (i.e., pier walls) will be removed daily. Any deficiencies in the netting system (i.e., tears, unsecured areas) will be repaired as soon as possible following observation. To avoid a take under the Migratory Bird Treaty Act (MBTA), nest will be knocked down with poles or scrapers or washed off before they are 1/3 complete.

### 3.19.16 Mammals

#### Survey Results

Yuma myotis

The Yuma myotis (Myotis yumanensis) is a federal species of concern and a California species of special concern. Optimal habitats for the Yuma myotis are open forests and woodlands with sources of water over which to feed. Suitable roosting sites include buildings, mines, caves, crevices, and abandoned swallows nests under bridges (Zeiner et al. 1990). The species is common and widespread in California, except above 2560 m (8000 ft).

Yuma myotis could utilize bridge structures in the study area for roosting, rearing young, and/or hibernating. Potential roosting sites for the Yuma myotis bat include abandoned swallows nests, rock crevices, and buildings in the study area. Intermittent and perennial creeks provide a water source over which to feed, and adjacent open forest habitat (i.e., oak woodland, valley foothill hardwood-conifer) are suitable for this species.

Although no bat species or evidence of bat activity (i.e., feces) were observed underneath the bridge structures during field investigations, the species is known to utilize abandoned swallows nests for roosting sites. CNDDB records provide no occurrences for Yuma myotis in the Brooks, Esparto, or Madison quadrangles.

San Joaquin pocket mouse

The San Joaquin pocket mouse (Perognathus inornatus) is a federal species of concern, which occurs in dry, open grasslands or scrub areas on fine-textured soils (Zeiner et al. 1990). The San Joaquin pocket mouse also inhabits shrubby ridge tops and hillsides, preferring open, sandy areas with grasses and forbs. The species digs burrows for cover; young are born and raised in a nest built in the burrow. The species is nocturnal and occurs between 250 and 600 m (1100 and 2000 ft) in the Central and Salinas Valleys.

Annual grassland habitat and soils in the study area provide potential habitat for the San Joaquin pocket mouse. No individuals of this species were observed during field investigations. The CNDDB search provided no records for San Joaquin pocket mouse in the Brooks, Esparto, or Madison quadrangles.

### 3.19.17 Project Impacts

Removal of the large oak trees and structures may result in the take of individual special status bats. There is a high potential that special-status bat species including Yuma myotis may use the structures and large oak trees onsite for roosts. Night roosts may occur in other structures within the project area, but are not protected, as disturbance to the roost during the day would not affect bats roosting at night.

### 3.19.18 Avoidance, Minimization and/or Mitigation Measures

Based on the possibility of bats day-roosting in some of the structures, the following measures will be implemented to reduce the potential for take of individuals:

A qualified bat biologist will conduct a habitat assessment of all buildings and large oak trees (>16 inch dbh) onsite, at least 30 days prior to demolition of the structures, removal of trees, or groundbreaking within 100 feet of structures or trees. If no bats, evidence of bat roosting activity, or openings into the structures suitable for bats are found, demolition can occur at the recommendation of the biologist.

If special-status bat species, evidence of their presence, evidence of past roosting activity by bats, or openings into the structures or trees suitable for bats are observed, specific recommendations will be provided by the bat biologist for the following; 1) focused surveys to determine presence or absence, location of roost, species and population; 2) sealing of openings and/or partial dismantling; or 3) timing of demolition. No sealing, partial dismantling or eviction of special-status bats may occur during the maternity season (April 16–August 15), or hibernation (October 16–February 14). Such activities may only be conducted between February

15–April 15, and August 16–October 15, to avoid mortality of young or torpid bats incapable of flight.

Structures identified as potential night roosts only (not day roosts) will be demolished during the day when no bats are occupying the structure.

With implementation of the above stated avoidance and minimization measures, the project is not expected to impact Yuma myotis bats.

### 3.19.19 Other, Non-Listed, Wildlife Species

#### Survey Results

Construction of the proposed project will result in short-term disturbance to and displacement of common terrestrial and aquatic wildlife within the study area. The project corridor provides habitat and travel corridors for such species as black-tailed deer and raccoons. Black-tailed deer feed within oak woodland habitat and utilize riparian vegetation for cover.

### 3.19.20 Impacts

Construction activities associated with the proposed project could restrict terrestrial wildlife movement through the project study area. In addition, construction noise could temporarily alter foraging patterns of resident wildlife species. Long-term impediments to wildlife movement within the project study area are not anticipated to exceed existing conditions (i.e., the no project alternative) because existing roadways already traverse the project corridor throughout the project study area. Potential impacts to non-listed species are considered negligible, and no mitigation is required.

## 3.20 Invasive species

### 3.20.1 Regulatory Setting

In 1999 President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the State’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

### 3.20.2 Affected Environment

The following invasive species were observed within and adjacent to the project study area: Italian thistle (Carduus pycnocephala), yellow star thistle (Centaurea solstitialis), field bind weed (Convulvulus arvensis), dodder (Cuscuta sp.), Bermuda grass (Cynodon dactylon), tumbleweed (Salsola tragus), Johnson grass (Sorghum halapense), and puncture vine (Tribulus terrestris).

### 3.20.3 Impacts

Noxious weed species are common in the project area. Movement of construction vehicles that disrupt and remove existing plants and seed banks in the soil have the potential to spread noxious weeds into the creek and riparian corridors and would be in conflict with Executive Order 13112: Prevention and Control of Invasive Species.

### 3.20.4 Avoidance, Minimization and/or Mitigation Measures

In order to minimize the impact associated with the potential spread of noxious weeds, including Italian thistle (Carduus pycnocephala), yellow star thistle (Centaurea solstitialis), field bind weed (Convulvulus arvensis), dodder (Cuscuta sp.), Bermuda grass (Cynodon dactylon), tumbleweed (Salsola tragus), Johnson grass (Sorghum halapense), and puncture vine (Tribulus terrestris), within and adjacent to the study area and to be consistent with the FHWA guidelines for invasive species, Caltrans will implement the following measures:

- Construction supervisors and managers will be informed of the importance of controlling and preventing the spread of noxious weeds;
- Construction equipment leaving an identified invasive plant area will be cleaned at a designated vehicle wash facility;

Prior to arriving at the project site, construction equipment (from a noxious weed-infested area or area of unknown weed status) will be cleaned of all attached soil or plant parts at a designated vehicle wash facility.

- Measures set forth in the Stormwater Pollution Prevention Plan (SWPPP) will be implemented to re-vegetate and restore disturbed areas immediately after construction is complete. Re-vegetation will require the use of certified weed-free native and non-native species mixes. The SWPPP will also specify that all disturbed areas will be weeded and reseeded in subsequent years if determined necessary.

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